The Nature and Variability of Tertiary Students' Learning Approaches and Test Outcomes When Learning From Text.

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ABSTRACT

This study explored the nature of the learning approaches used by a group of tertiary students when learning from text and their associated written test outcomes. Ninety second year university students were studied in two separate situations and the findings from this study were used to predict the learning behaviour of a sub-group of 23 in a third situation. The method employed reflected a second order perspective, incorporating the Approaches to Studying Inventory (Ramsden, 1983) and written retrospective reports on learning behaviour.

The combination of the learner's motive, focus and the degree of strategy elaboration emerged as the most effective means of describing students' learning approaches. Six distinct learning approaches were identified by considering each participant's reported learning behaviour in relation to these dimensions. An analysis of reported learning approaches using this classification scheme revealed considerable intra- and inter-situational variability in learning approach. However, some forms of stability within this variability were identified suggesting that a student's learning approach can exhibit both variability and consistency.

Four distinctive learning outcomes were identified from the written test responses. These differed in focus, level of elaboration, degree of integration, extent of overview, evidence of rote learning and extent of personal synthesis. When each students' test outcome was compared to their reported learning approach to learning discrepancies were found which suggested that approach was not the sole determinant of learning outcome.

When the data from the Approaches to Studying Inventory were compared with that from the retrospective reports made by students no consistent patterns emerged. This is consistent with the conclusion that learning approach is an individual, context specific response which is not able to be described using instruments which assume uniformity in approach.

From the findings of this study a nascent theory of tertiary student learning behaviour when learning from text and an 'effective learner' profile were developed.

TABLE OF CONTENTS

LIST OF TABLES AND FIGURES

List of Figures and Tables (continued).

Chapter One.

INTRODUCTION

The last fifteen years have witnessed the emergence of a new perspective in the study of learning, characterized by the recognition of the value of studying learning from the perspective of the learner. The development of this second-order perspective (Marton, 1981) can be largely attributed to the work of three groups of researchers working in Sweden, Britain and Australia. While working from different theoretical perspectives the work of these groups has provided research frameworks for describing the approaches of students to their learning tasks that have generated more ecologically valid explanations of the learning process than those that have emerged from traditional psychology (Entwistle & Hounsell, 1979).

These frameworks represent a significant departure from the experimental approach that has characterized traditional educational psychology research. By drawing upon the students' experience of learning rather than the researchers observation of this experience, the new methods operationalize the assumption that learners are active agents in the learning process, able to reflect upon and report their learning behaviour. Such an approach is particularly suited to the study of adult learning because it validates the learner's experience and provides a foundation for collaborative research.

Two broad research paradigms have emerged. Both have addressed the nature of students' learning approaches but each is founded upon a different assumption on how learning behaviour can be described. The first paradigm, termed phenomenography, is grounded in the reality of the learner, primarily using interviews to gather data on students' experience of learning. In contrast the second paradigm is psychometric, depending upon inventories for the description of learning.

The inventories that characterize the psychometric studies ask students to report typical patterns in their learning behaviour by rating this behaviour

against the range of propositions stated in the inventory. In contrast the phenomenographic studies focus upon specific learning situations. Learners are asked to provide data of a contextually specific nature in their own words.

Chapter Two reviews the literature that has emerged since 1975 from both psychometric and phenomenographic studies on learning approaches. This review reveals that, although many studies have investigated learning approach and various factors contributing to the nature of students' learning approaches, few studies have explored the nature of these factors and their impact on the learning approaches of individual students across several learning situations. This study addresses this area, exploring the way in which the learner's approach varies from one situation to another and identifying those factors that are closely associated with the variation detected.

The term 'learning approach' embraces both the motivational and strategic elements of the learner's behaviour (Biggs, 1989). Traditionally these two facets of learning have been addressed independently. However, recent studies have suggested that an essential congruency exists between the nature of a learner's motivation and the learning approaches employed which supports the proposition that these aspects of learning can not be considered in isolation from each other. (Biggs, 1978; O'Neil & Child, 1984).

> "Students devise strategies to solve the problem their motives have defined for them." (Biggs, 1989, p. 12).

Therefore to understand learning behaviour, consideration must be given to both the context and content of learning so that motive can be considered in relation to the strategic components of learning. For this reason the study of learning behaviour undertaken for this thesis was not decontextualized. The learning activities investigated were an integral part of the participants' course work .

The aim was to explore the level and nature of situational variability in learning approaches and outcome exhibited by tertiary students and identify the factors that contributed to this variability. To do this students' learning approaches were studied in three different courses.

This study represents the first known study of tertiary students in New Zealand which employs a second order research methodology to explore the nature of learning approach across multiple learning situations. In so doing it provides insights into the degree and nature of learning approach variability exhibited by tertiary students and provides a basis upon which to consider the most appropriate ways to promote learning efficacy.

In addition, by utilizing questionnaires rather than the time intensive, indepth interviews which characterize the phenomenographic studies which have inspired this study, the research design has implications for educators wishing to effect their own 'in vivo' action research into student learning within the confines of busy teaching schedules.

The insights and implications of this study are discussed more fully in Chapter Five. This discussion forms the basis for the development of a nascent theory of learning approach and an 'effective learner' profile.

Chapter Two.

LITERATURE REVIEW.

Introduction

This chapter reviews the research on tertiary students' learning approaches that has been documented since 1975. The studies reviewed are first discussed in relation to the research methods used and then in terms of the insights they provide on the manner in which tertiary students approach learning tasks, the subsequent learning outcomes and the factors that appear to be associated with the learning process.

Method.

Operational Definition.

Learning approach has been defined for the purposes of this review as the combination of motive and strategy a learner applies to a learning task. This conception of the term is consistent with the literature on tertiary learners' study behaviour (Biggs 1979; Entwistle 1979; and Marton 1976a, 1976b; Van Rossum & Schenk, 1984).

The Search.

Identification of relevant research for this review began with a preliminary study of the papers presented at the Marysville Symposium on student learning, held in Victoria, Australia in 1986. From the study of the research and theoretical papers presented three search strategies were devised:

1. A Dialog search of the ERIC and PSYCINFO files was undertaken using key words from the titles and abstracts of papers repeatedly cited by the presenters at the symposium.
2. The research papers cited in a paper containing a reasonably comprehensive research review that were available in New Zealand were located.
3. The periodicals cited in the bibliographies of papers relating to learning approaches were identified and volumes from January 1975 were visually scanned for appropriate articles. These periodicals were:

British Journal of Educational Psychology.
Higher Education.
Higher Education Research and Development.
Studies in Higher Education.
Vestes

Combinations of the descriptors 'learning', 'strategies', 'metacognition', 'deep' and 'surface' were used for both Dialog files. The most manageable result was produced by the combination 'learning strategies and metacognition and deep or surface'. This identified 9 references in ERIC but failed to identify any references in PSYCINFO. All other combinations produced unwieldy lists. Of the 9 items identified by the combination above none were written by prominent researchers cited in the symposium papers and as not one item was available locally this strategy was abandoned in favour of a combination of the later two strategies.

Restrictions.

The following restrictions were placed upon the literature selected for this review:

1. Research samples should be tertiary students.
2. Only research published from January 1975 would be considered.
3. The term 'learning approach' must be used in a manner consistent with the operational definition stated above.

The first restriction reflects the reviewer's area of interest. The second was chosen as a convenient cut-off date after an analysis of the bibliographies of symposium papers. The third restriction was necessary to exclude the study skills area which is not centrally related to the area of study but which has generated an extensive body of literature.

Coding.

The following themes were used to provide the organisational framework for the analysis of the research included in this review.

Methodology

- Types of methodology
  - phenomenographic
  - psychometric
  - combination of the above
- Type of learning task studied
  - academic text
  - other
- Relationship between variables (i.e.,, internal/external)
- Theoretical framework
- Type of analysis employed

  psychometric instrument
  - factor analysis
  - correlation

  qualitative

Samples

- size (<,> 100)
- Composition
  - gender
  - age
  - academic year
  - academic department

Findings of the studies

- nature of the approaches identified
  - deep / surface
  - meaning (internalising) / reproducing (utilising) / achieving
- Nature of outcomes associated with particular learning approaches
  - academic success
  - complexity
- variables identified as influencing learning approach
  - personological
  - contextual

Analysis of the Literature.

Methodologies Employed.

Research into the learning approaches of tertiary students falls neatly into three methodological types: studies that utilize a highly qualitative approach (Dahlgren, 1978; Dahlgren & Marton, 1978; Fransson, 1977; Laurillard, 1979; Martin & Ramsden, 1986; Marton & Saljo, 1976a, 1976b; Svensson 1977), studies that are essentially psychometric (Biggs, 1978,1979; Biggs & Kirby, 1983; Bowden et al, 1987; Clarke, 1986; Entwistle et al, 1979; Entwistle & Waterston, 1988; Meyer & Parsons, 1989; O'Neil & Child, 1984; Speth & Brown, 1988; Ramsden & Entwistle, 1981; Thomas, 1987; Watkins, 1987; Watkins & Hattie, 1981) and those that employ elements of both approaches (Ramsden, 1979; Van Rossum & Schenk, 1984).

The qualitative studies have been dominated by a group of researchers working at Gothenburg University in Sweden while the work of researchers at London and Lancaster Universities in the United Kingdom and Biggs in Australia has been central to the psychometric tradition that has emerged. Composite approaches have been a more recent development, occurring largely as a response to researchers desire to rationalize the area of study and seek a basis for practice.

Marton and his colleagues in Sweden have undertaken a range of studies which explore university students' approaches to reading academic articles. Their studies have involved retrospective student reports of their learning approaches and the intuitive analysis of interview data. (Entwistle, 1981). This approach represents a significant departure from the experimental, correlational studies that are prevalent in educational psychology. Typically the learners' statements about what they have learned from a passage of text are recorded and coded according to emergent categories. Co-judging by independent judges was frequently used to check coding reliability (E.g., Fransson, 1977; Van Rossum & Schenk, 1984).

In the early studies of the Gothenburg group the coded data on outcome was

related back to the students' reported learning approaches which had been independently coded. In this way, while data on both these aspects were analysed within the context and content of the learning task, they were considered independently (i.e., assumed to have an external relationship) (Marton & Svensson, 1979). Regardless of methodological approach, Svensson's (1977) study represented the first, and only attempt located by the reviewer, to treat the relationship of process and outcome as interdependent (i.e., internal). All other studies continued the tradition of treating the relationship between process and outcome as external. Biggs (1979) for example used the SOLO Taxonomy (Biggs & Collis, 1979) to categorize the qualitative outcomes of learning before relating these to the subjects' study processes as determined by a study processes inventory.

The rationales underpinning the qualitative methodologies reflect a theoretical perspective that is a significant departure from the traditional approach to the study of student learning which involves the testing of hypotheses about learners' characteristics and behaviour, often in very highly controlled, experimental conditions. In contrast, Marton and his colleagues' preoccupation with the "here-and-now' and their contention that the content and context of learning can not be divorced from the actual act of learning (Marton & Saljo, 1976a) suggest strong links with existential psychology.

Further more, they believe that by considering learning from the perspective of the learner they are able to provide a more ecologically valid explanation of student learning than is possible using the controlled experimental methodologies and explanatory theoretical frameworks of the traditional perspective (Entwistle & Hounsell, 1979). Their alternative perspective has led to the development of an essentially descriptive rather than prescriptive research tradition which has come to be known as phenomenography (Marton, 1981).

Phenomenography is essentially experiential and phenomenal (Marton, 1978, quoted in Marton & Svensson, 1979). Studies are conducted in naturalistic

settings and seek to identify students' learning approaches and explore the contextual variables that impact on these. Analysis of data is essentially subjective involving seldom more than simple cross-tabulation. The variables that have been explored by these studies are discussed in the section of this chapter which deals with the results of these studies.

In contrast, the psychometric research into learning approaches has involved the development and application of inventories. Like the phenomenographic studies, however, the inventory based studies have primarily sought to describe learning rather than to be diagnostic or prescriptive. These descriptions have focussed on the motivational and strategic characteristics of reported generalized learning behaviour although the influence of Pask's (1976) work on learning styles prompted learning style dimensions to be addressed in the Approaches to Studying Inventory (Ramsden, 1983).

Almost without exception these studies have involved factor analysis (Cronbach's Alpha) in their quest to provide and/or confirm a rational structure for the data gained from students' responses to general statements about aspects of their learning behaviour. (E.g., Meyer & Parsons, 1989; Thomas, 1987; O'Neil & Child, 1984). Correlation techniques were also used in studies mentioned in this paper to; establish the level of association between learning approach and academic locus of responsibility (Watkins, 1987), to establish the level of congruency between the strategy and motivation sub-scales of Biggs' inventory (1979) (O'Neil and Child, 1984), identify the level of association between grade point average and learning appproach (Watkins and Hattie, 1981) and to compare two inventories (Entwistle & Waterston, 1988).

The Study Process Questionnaire (SPQ) (Biggs, 1986) is one of three inventories that form the foundation of the psychometric studies. The other two are the Approaches to Studying Inventory (ASI) (Ramsden, 1983) and the Course Perceptions Questionnaire (CPQ) (Ramsden, 1983). Table 1 shows

which inventories were used by the studies reviewed.

Table 1

Inventory Usage in Recent Studies of Student Learning.

Author	ASI	SPQ	CPQ	OTHER	Notes
Biggs (1978)		√			
Biggs, (1979)		√		√	SOLO (Biggs & Collis, 1982)
Biggs & Kirby, (1983)		√			
Bowden et al., (1987)				√	Own language inventory.
Clarke, (1986)	√				
Entwistle et al., (1979)	√	√			
Entwistle & Waterston, (1988)	√			√	ILP (Schmeck, 1977)
Meyer & Parsons, (1989)	√		√		
O'Neil & Child, (1984)		√			
Ramsden, (1979)			√		
Ramsden & Entwistle, (1981)	√		√		
Speth & Brown, (1988)	√			√	ILP (Schmeck, 1983) TPAS (Speth & Brown, 1988)
Thomas, (1987)				√	Thomas & Bain, (1984)
Watkins, (1987)	√			√	IAR (Perry, 1982)
Watkins & Hattie, (1981)		√		√	ILP (Schmeck, 1977)
Van Rossum & Hattie, (1984)				√	SOLO (Biggs & Collis, 1982)

Listed below are examples of the statements that respondents are asked to consider in the Approaches to Studying Inventory (ASI). These are typical of the sort of statements that respondents are asked to consider in the inventories used by researchers in the area of learning approaches.

- If conditions aren't right for me to study, I generally manage to do something to change them. (ASI)
- I chose my present courses mainly to give me a chance of a really good job afterwards. (ASI)
- In trying to understand new ideas, I often try to relate them to real life situations to which they might apply. (ASI)

Typically subjects are asked to respond to statements using a Likert scale. This means that both the themes addressed and the mode of response are confined to a framework dictated by the researcher. In addition this research review has found that almost without exception inventories are only administered on a single occasion. The study of the relationship between study activities and first year assessment activities at an Australian College of Advanced Education by Thomas (1987) was the only example located of multiple administration of an inventory to the same sample. Single administration is consistent with the view that learning approach is a stable characteristic and a feature of the learner and not the learning situation. This in turn reflects the assumption that learning approaches can be studied in a non-contextual and content free manner.

Researchers seldom cited evidence to support this assumption. This is in complete contrast to the assumption of variability of approach underpinning phenomenographic research (Thomas, 1987). It must be noted, however, that phenomenographic studies have produced some evidence of inter-context approach stability. (E.g., Svennson, 1977).

Similarly, phenomenography has assumed that an individual learner adopts a single approach during a learning episode. Studies over a three year period reported by Thomas (1986a) provide no support for this assumption which implies that learning approaches are mutually exclusive. Such a notion is likely to be an artifact of the dependence of phenomenographic studies upon small learning tasks requiring learning from text. On the basis of his findings Thomas (1987) argues that it is more likely that learning approaches are "combinatorial in nature" rather than mutually exclusive for a given learning task.

Only a small number of studies have addressed the learning approach of the same individual in different situations (Laurillard, 1979; Marton & Saljo, 1976b; Ramsden, 1979, 1984). These studies revealed that learning approach can show both consistency and variability depending upon the nature of the

learning task set and the conditions under which learning occurred.

For example, Laurilland (ibid) found that for some students learning approach was context dependent so dichotomised codes for categorizing learning approach were not applicable to these students across different learning situations. Dichotomies such as deep and surface learning approach could only be used to describe an individual's learning behaviour in a specific learning context. Such findings prompted researchers of both methodological predispositions to reconsider their assumptions regarding inter-task variability and consistency (Entwistle, 1979; Marton & Svensson, 1979).

Samples

The subjects in all the studies reviewed were tertiary students. In general, specific details on age were not given in the papers although the majority indicated the composition of the samples in terms of the academic year of the subjects. The European studies and the majority of British studies confined their samples to first year students. This was not the case for the Australian studies which characteristically included subjects from more than one academic year (E.g., Biggs & Kirby, 1983; Watkins & Hattie, 1981; Clarke, 1986).

Given the disciplines of the researchers it is not surprising that psychology students figured prominently in the samples. The studies employing a phenomenographic approach tended to draw their students from one (E.g., Marton & Saljo, 1976a, 1976b; Svensson, 1977; Van Rossum & Schenk, 1984) or occasionally two disciplines (E.g., Fransson, 1977). In contrast the studies employing exclusively psychometric approaches tended to draw their subjects from a range of disciplines (E.g., Biggs & Kirby, 1983; Ramsden & Entwistle, 1981; Watkins & Hattie, 1981). In these three examples both arts and science students featured in the samples.

Differences in sample size distinguished the pyschometric studies from those that were exclusively or at least in part phenomenographic in their approach. While the phenomenographic studies relied on small samples that did not

exceed 100 the pyschometric studies tend to have considerably larger samples. For example; Ramsden and Entwistle (1981) based their study on a sample of 2208 polytechnic and university students while Biggs and Kirby (1983) also gathered data from in excess of 2000 students from colleges of advanced education and universities. Such sample sizes are feasible when using inventories.

In contrast the constraints of time restrict phenomenographic studies to much smaller groups, typically of 30 to 40 subjects. Not surprisingly the use of such small samples, drawn from only one or two disciplines, has serious implications for the phenomenographic studies in terms of the generalisability of the research findings.

Details on sample composition and sampling technique were not always adequate in the research reports studied. Gender ratios in the samples, for example, were often not reported. From those that do give sufficient details it is clear that representative sampling was not a high priority. This is particularly true of the phenomenographic studies where convenience samples were often used. (E.g., Marton & Saljo, 1976a, 1976b; Svensson, 1977). The effect of this lack of consistency and paucity in sample data makes the identification of comparable studies difficult.

Findings

A. Types of approach.

The studies undertaken by Marton and his colleagues clearly demonstrated that the learners studied employed different, task specific approaches when reading an academic article. These approaches could be characterized in terms of the learners intended purpose and the focus of their attention. The approaches could then be related to qualitatively different levels of outcome. (Fransson, 1977; Marton & Saljo, 1976a, 1976b; Svensson, 1977).

It was found that those students who approached the reading of an article with the intention of understanding it employed strategies which enabled

them to establish not only the details given in the text (the sign) but also what was signified by the details and the relationships between them. In contrast those students who merely sought to memorize the details embedded in the text employed strategies which meant that they did not establish what was signified by these details. Such students also appeared to be more aware of the learning conditions in which they were operating. These two approaches were termed **surface** and **deep** respectively. The key features of these approaches are given in Table 2.

Table 2

Characteristics of Deep and Surface Approaches.

Feature	Deep	Surface
Focus	On what is signified.	On the sign (i.e., details)
Aim	To understand.	To memorize.
Strategies	Transformational.	Reproductive.
Motivation	Intrinsic.	Extrinsic.

Even though students adopting a surface approach focussed upon memorizing the facts in the article, utilising essentially rote learning techniques, several studies found that learners who employed a deep approach are actually better able to recall the facts in an academic article than those who employed a surface approach (Marton & Saljo, 1976a, 1976b; Svensson, 1977). Svensson (ibid) concluded that this was inevitable because these subjects had interacted in more depth with the text material.

The Lancaster research commenced in 1968 with the initial intention of establishing how motivation and personality predict the degree results of students (Entwistle, 1981). Again the learning task at the centre of the research was the reading of academic text but it was not until several years had elapsed that any attempt was made to link this research with that of the Gothenburg researchers.

The Lancaster studies were primarily questionnaire based. From the factor

analysis of the responses gained, three learning orientations or approaches were identified: **meaning, reproducing** and **achieving** or strategic. Each dimension has a value, motive and strategy component. These are summarized in Table 3.

Table 3

Learning Orientations.

Orientation	Value	Motive	Strategy
Meaning	Goal of education is personal development.	Intrinsic.	New information related to old.
Reproducing	Main purpose of university is vocational.	Extrinsic.	Limit activity to syllabus, rote.
Achieving	Learning is a game.	Need for success.	Very organised.

While the third orientation represents a type of approach not described by Marton et al. the first two orientations have been equated with the deep and surface levels of processing proposed by Marton and Saljo (1976a). This correspondence should not be blindly accepted, however, as the two classification systems have arisen from research designs based upon quite different research paradigms.

Specific variations within each approach have been identified by researchers using both methodologies. It became clear that the approaches exhibited by learners varied in terms of how involved the students became and the level of effort expended. For this reason the sub-categories of **active** and **passive** were delimited (Fransson, 1977; Entwistle et al, 1979). It also became apparent that learners could undertake deep processing in different ways (Pask, 1976). As a result of Pask's work two sub-approaches were also defined for the deep approach. Termed **operational** and **comprehension** learning, these approaches, while sharing the same motivational component, differ in the attention given to factual and procedural detail. The operational approach is characterized by attention to factual and procedural information,

cautiousness in accepting generalisations and a reliance upon step-by-step strategies. The comprehension approach on the other hand is characterized by the initial concern for obtaining a broad overview and establishing the relationships between ideas and previous knowledge.

Disfunctional approaches to learning have also been identified (Pask, 1976). **Globetrotting**, which refers to the tendency by students to engage exclusively in comprehension learning, was found by Entwistle and Ramsden (1983) to be most prevalent among students in psychology departments. On the other hand, **improvidence**, which refers to the exclusive use of operation learning, was most common in economics departments. Neither approach leads to totally successful learning outcomes (Newble & Clarke, 1986).

Independent studies by Biggs in Australia identified three approaches to learning that are essentially identical to those produced by the British studies. Biggs (1979) termed his approaches **internalising** (Meaning), **utilising** (Reproducing) and **achieving** (Achieving). Like those detailed by Ramsden and Entwistle these approaches also contain a motivational and strategic component. The consistency which subjects in Biggs' studies demonstrated between the type of motivation and strategies they employed led Biggs to propose his 'congruency hypothesis' (1978,1981). A subsequent study by O'Neil and Child (1984) which assessed the factor structure and sub-scale relations in the inventory developed by Biggs (SPQ) found that the inter-correlations of between motive and strategy sub-scale scores strongly supported this hypothesis.

The specific approaches defined within the ASI and SPQ inventories appear to be independent (Thomas, 1987). Factor analyses of data generated by these inventories (Biggs, 1979; Entwistle, Hanley, & Hounsell, 1979) strongly support this observation. In addition, O'Neil and Child (1984) and Watkins (1982) have both reported very small differences between oblique and orthogonal rotations which provide further support for the independence of the learning approaches defined by each inventory. The comparative analyses

of the ASI and SPQ also warrant mentioning as they have strongly suggested that these two inventories are measuring the same factors (Entwistle et al., 1979).

Two replicative studies were located which sought to test the transportability of particular inventories. These were the South African study conducted by Meyer & Parsons (1989) which sought to replicate Entwistle and Ramsden's definitive study (Entwistle & Ramsden, 1983) and the British study, undertaken by O'Neil & Child (1984), which sought to confirm the factor structure of Biggs' Study Process Questionnaire (SPQ) with British subjects. In both cases only partial confirmation of the inventories' factor structures was achieved. This has led researchers to question the cultural transportability of some aspects of the inventories.

B. Nature of the Outcomes Associated With Particular Approaches.

Regardless of the methodology employed, the research reviewed collectively gives strong support to the proposition that surface as opposed to deep or achieving approaches can negatively affect the quality of the learning outcomes achieved. This proposition was not challenged by any study located in this review. Overall the literature suggests that students who seek to establish the meaning of what they are studying, rather than simply reproducing it, are likely to produce qualitatively superior learning outcomes compared to those who do not (Gibbs, 1979; Fransson, 1977; Marton & Saljo, 1976a, 1976b; Ramsden & Entwistle, 1981; Svensson, 1977; Van Rossum & Schenk, 1984; Watkins & Hattie, 1981).

The range of outcomes produced for a given learning task is called the 'outcome space'. In the phenomenographic studies this was established by rigorous examination of empirical data rather than by logical or deductive analysis. It is therefore a map of the outcome variations for a specific learning activity (Dahlgren, 1984).

The findings of the phenomenographic studies revealed that the outcomes

within a given outcome space were hierarchically related (Dahlgren, ibid). From the most qualitatively superior to the most inferior a gradient could be detected which was characterized by increasing 'horizontalization' (ibid). This term refers to the increasing tendency to ignore or overlook the subordinate status of examples and elaboration used to support or clarify the central theme or argument in an written article.

Students who reported surface approaches typically produced learning outcomes which did not distinguish the central argument from the supporting detail while those who reported deep learning approaches tended to produce outcomes which revealed that they understood the subordinate function of the supporting detail.

While much of the research into learning approaches has sought to describe the nature of the approaches adopted by students and the contextual factors influencing these approaches in relation to the task specific outcome space it was inevitable that learning approaches would come to be studied in relation to academic attainment. In an interesting study, Ramsden and Entwistle (1981) used discriminant function analysis to establish the effectiveness of learning approach data in predicting academic progress. Using the defining variables 'organised study methods', 'positive attitudes to studying', 'strategic approach' and to a lesser extent 'achievement motivation' they were able to place 90% of their sample correctly in their respective achievement groups. This result confirmed the results of a similar earlier study (Entwistle et al., 1979).

This study also found a relationship between the ratings students gave themselves with regard to academic success and their reported learning approaches. The analysis of these data revealed that the students who believed they were doing well in their academic studies more commonly reported adopting a meaning orientation to their studies.

Newble and Clarke (1986) correlated ASI scores from medical students at

Newcastle and Adelaide universities with their end of year examination scores to establish whether inventory scores could predict poor performance. They found that the most consistent predictors of poor performance were negative attitudes to studying and disorganised study habits while the most reliable predictor of good performance was an achieving (i.e., strategic) orientation. This was supported by the findings of Ramsden and Entwistle's (1981) study. It was an interesting result, although, it did not confirm that a surface approach was a strong predictor of poor performance as might have been expected. This may suggest that these examinations were assessing recall rather than complex understandings.

In contrast, Clarke (1986), using the ASI, had difficulty identifying approaches to learning that were consistent predictors of learning in medical students. His results forced him to conclude that:

> "....the cognitive aspects of the approach to learning generally fail to emerge as predictors of academic success." (Clarke,1986, p.318).

Svensson (1977), using non-psychometric analyses, also explored the relationship between learning approaches and academic performance. He found that the most successful group of students in his voluntary sample of 25 female and five male first year education students were those that adopted a deep approach in the experiment and reported that this was their characteristic approach to learning. Only one of this group did not pass all five end of year examinations. Consistent surface learners were far less successful. Of the 13 students in this category 10 failed at least one end of year examination. Of the four students who adopted a deep approach in the experiment but defined their typical approach as surface level two failed at least one examination while the only student in the study who typically adopted deep approaches but used surface approaches in the study passed all end of year examinations. Svensson concludes from this data (N=30) that, although it is not the complete explanation, the approach students adopt "provides a good, and functional, explanation of academic performance in

examinations." (Svennson, 1977, p. 241).

Biggs' study (1979) which sought to determine the strength of the relationship between learning approach, as revealed by the SPQ, and complexity of learning outcome, as revealed by the SOLO Taxonomy, produced rather inconsistent results. The results did not support a relationship between the achieving (i.e., strategic) approach and learning complexity. If the SOLO Taxonomy and examination results are measuring the same aspects of learning outcome then this finding challenges the findings of Ramsden and Entwistle (1981) and Newble and Clarke (1986). However, it is more likely, given the likelihood of a quantitative bias in the assessment procedures in tertiary education, that Biggs' (ibid) findings can not be compared with those of Ramsden and Entwistle (ibid) and Newble and Clarke (ibid).

C. Associated Factors.

The phenomenographic studies not only provided an approach for establishing the types of approaches employed by students when reading academic text. They also identified associated factors which might be linked to the selection of learning approaches. Marton & Saljo (1976b) demonstrated that by altering the **perceptions of the required outcome** held by their subjects of the reading exercise the level of processing adopted could be manipulated. Those who were led to believe, by the nature of questions interspersed through the task, that factual recall would be required following the text reading tended to adopt a surface approach. This was not the case for those who were exposed to questions suggesting they would be required to demonstrate a deeper level of understanding. The vagueness of these questions for some subjects resulted in the 'technifying' of their learning which produced understanding structured around those features made explicit by the questions.

Fransson's study (1977) which sought to manipulate the levels of **extrinsic motivation** experienced by subjects graphically illustrates the dangers of researchers imposing their meanings on a research design. The analysis of the

level of processing and the motivational situation as defined by the researcher in this study revealed few consistent patterns. When consideration was given to the subjects' reported motivation, however, it became clear that the level rather than the type of motivation was associated with the approach adopted. The most significant finding, however, was that trait anxiety level was an important variable influencing the approach adopted. Under conditions of high anxiety subjects reported employing much more surface approaches than when reported anxiety was low. While an appealing and seemingly obvious conclusion it is important to note that it is drawn from a study which was based upon several assumptions that, in the course of the study, were found to be unjustified.

Van Rossum & Schenk (1984) produced evidence from a study of 69 first year psychology students which suggested that the **conception of learning** that a student held was associated with the learning approach that they adopted and the subsequent quality of the learning outcome they achieved. The study found that the subjects held one of the five conceptions of learning listed below.

<u>Learning is:</u>

- An increase of knowledge.
- Memorizing.
- Acquisition of facts to be retained and/or utilised in practice.
- The abstraction of meaning.
- An interpretative process aimed at the understanding of reality.

Only two (N=35) students who adopted surface level processing conceived learning as the abstraction of meaning or as an interpretive process while four (N=34) of those students who adopted deep level processing in the study conceived learning as an increase of knowledge or memorising. From these findings the researchers concluded that the strategy adopted by the subjects was connected with their learning conception and speculated as to whether a change in the level of processing could be effected by changing students'

conceptions of learning.

Comparison of the data on learning outcomes of the research task with that on conception of learning and level of processing led Van Rossum and Schenk (1984) to conclude that a relationship exists between these three variables. The nature of the relationship can only be a matter for conjecture, however, particularly given the reservations expressed by the researchers regarding the appropriateness of treating the relationships between the variables as external.

Associations between **gender** and learning approach were suggested by several studies. Van Rossum and Schenk (ibid) found that twice as many males as females held a constructive rather than reproductive conception of learning. They also reported that twice as many males as females adopted a deep level approach to the research task. This gender relationship contradicted the findings of an earlier study by Watkins and Hattie (1981), however, who found, using a psychometric approach, that regardless of academic department, academic year and age, females were more likely to adopt an internalising (deep) approach than males. Such conflicting results suggest more study is required to establish the validity of comparisons between psychometric and phenomenographic studies and the inter-culture reliability of such studies.

Relatively few of the studies located considered the relationship of **age** to learning approach. In most cases this factor was not separated from academic year. Watkins and Hattie (ibid) did distinguish between these two factors and found that in one Australian university , regardless of sex, faculty or academic year the older students were less pragmatically motivated, more likely to adopt a deep approach to learning and use strategies that led to academic success than younger students.

Studies by Entwistle and Ramsden (1983) have suggested that a relationship exists between **academic departments** and learning approach. It appears that when science students approach their learning at a deep level they employ an

operational approach more commonly than arts students who are more likely to employ a comprehension approach. Other studies using the Lancaster Inventory suggest a relationship between academic department and the choice of deep and surface approaches.

Science students in these studies tended to have higher surface approach scores than art students, while the reverse was true for deep approach scores (Biggs & Kirby, 1983; Ramsden & Entwistle, 1981; Watkins & Hattie, 1981). Watkins and Hattie (ibid) found that art students tended to report higher motivation and record higher scores on the internalising, meaning and openness scales of the SPQ than science, rural science and economics students. The general finding that art students tend to use deep processing approaches was also confirmed by data gathered in the same study using an alternative inventory, the Inventory of Learning Processes (Schmeck et al., 1977). Such inter-departmental variations serve as a caution to those seeking to generalise from single department studies.

Heavy workload was found to strongly correlate ($p<0.001$) with the use of reproductive approaches to learning (Ramsden & Entwistle, 1981). This finding was supported by the a study by Dahlgren and Marton (1978) who found that economics students' naive understandings of the notion of price did not mirror those given by course texts and lecturers and given by these students in their first-year examinations. Dahlgren (1978) accounts for this discrepancy by suggesting that the demands of excessive workloads forced students to abandon attempts to understand the concepts they are studying in favour of surface approaches that allowed them to pass examinations. These findings and conclusions should not be taken as evidence of a causal relationship between workload and learning approach, however.

Studies have also detected differences between the predominant learning approaches of students in departments of the same discipline (Newble & Clarke, 1986; Ramsden, 1979). These differences suggest that factors such as **teaching styles** and **assessment strategies** rather than content alone contribute

to the departmental influence detected. Ramsden (1979), using the CPQ in conjunction with semi-structured interviews, found that his subjects placed a great deal of importance on the degree to which the teacher understood their learning needs and that their perception of how well their teachers achieved this understanding exerted an important influence on the learning approaches they subsequently adopted.

Ramsden and Entwistle (1981) compared data from a shortened version of the ASI with that from the CPQ in a study of 2208 students from 66 departments in British polytechnics and universities. Their findings revealed that the departments which rated highly on good teaching and freedom in learning had students with higher average scores on the meaning orientation of the ASI than those that did not. However, this study was subsequently repeated by Meyer and Parsons (1989) and this relationship at the level of the individual student was not confirmed.

There is little doubt that assessment strategies have an important influence on student learning behaviour (Bowden et al., 1987; Elton and Laurillard, 1979; Marton and Saljo, 1976b). A study by Newble and Jaegar (cited in Newble and Clarke, 1986) demonstrated the powerful effect students' perception of the assessment procedures have on the learning approach adopted by students. Changes to the examination format produced a change in the behaviour of the students which was not intended. Further revisions were then undertaken which resulted in the students revising their behaviour to a more desirable form. The ability of assessment procedure to affect students' learning approach was also demonstrated by Thomas (1986b). He discovered, however, that the change in approach induced by manipulation of the assessment procedure did not affect the rank order of individual students. Marton and Saljo (ibid) also noted the power of anticipated assessment strategies to influence the selection of learning approach. In their study of first year psychology students they found that when tests requiring factual recall were anticipated even students who showed a preference for deep level approached adopted a surface approach.

Summary and Discussion.

The research reviewed provides important insights into the nature of tertiary students' learning approaches and their subsequent learning outcomes. Findings are reported which give support to the existence of at least two mutually independent though not necessarily mutually exclusive learning approaches which are widely referred to as **surface** and **deep** (Biggs, 1989; Fransson, 1977; Marton & Saljo, 1976a, 1976b; Svensson, 1977; Van Rossum & Schenk, 1984). Surface approaches are characterized by an intention to memorize the material being learnt by way of typically rote strategies and extrinsic motivation while deep approaches are characterized by a desire to understand what is being studied and intrinsic motivation.

A third approach, **achieving** (Biggs, 1979; Entwistle, 1981; Entwistle & Ramsden, 1983) has also been identified but primarily from the findings of those workers working within the pyschometric tradition. This approach is characterized by a desire to succeed and is characterized by highly organized strategies which focus upon "playing the game' rather than achieving a deep understanding of what is being learnt (Biggs, 1978, 1979; Entwistle, 1981; Entwistle et al., 1979; Entwistle & Ramsden, 1983). Learners employing this approach reportedly have the ability to employ either deep or surface approaches to achieve their aim.

Distinctive types of deep and surface approach have also been identified (Entwistle et al., 1979; Fransson, 1977; Pask, 1976) although these have not gained the attention of researchers to the same extent as surface, deep and achieving and so are not so widely reported in the literature.

The literature also suggests that learning approaches are influenced by a number of personological and contextual variables such as perception of the learning outcome, conception of learning, age, academic department, workload, teaching style and assessment strategies.

Several researchers point out that the research to date has provided valuable insights but not strongly supported broadly based findings (Entwistle, 1981; Marton, 1986). Marton (1986), however, would argue that phenomenography is not about producing generalised findings. Rather it is a means of generating situation-specific data and that deterministic predictions are a logical impossibility.

It could be argued that collectively the results from the phenomenographic studies in particular contribute to an explanation of learning from academic text that can be generalised. However, no comparisons between the texts used have been made so we can not be sure that the reading tasks employed are comparable. This highlights the 'achilles heel' of this approach. While it can claim to be a more ecologically valid means of investigating learning than tradition approaches such as the psychometric approaches described in this paper, the findings produced by individual studies have limited relevance outside the researched setting because of this very ecological sensitivity (Bock, 1986).

The qualitative research techniques used precluded large samples so representative samples were not readily accommodated. The reluctance of researchers to draw conclusions outside the context of their respective studies therefore appears to be justified both in terms of the theoretical framework upon which phenomenographic studies are founded and the questionable validity of their findings to other populations.

Similarly, conclusions drawn from the psychometric studies must be considered within the context of this methodology. The inventories restrict the students' responses to a framework that has been defined independently of a specific learning situation. The inventories also require respondents to answer in a prescribed fashion. This imposes a response bias and superficiality (Entwistle & Hounsell, 1979). That these are the very factors that the phenomenographic approach seeks to avoid has encouraged researchers to see the two approaches as complementary. The fact that researchers from

both perspectives cite findings from each other suggests that this conclusion is already widely accepted.

Whether such a conclusion is justified is questionable. Prosser (1986) suggests that there is no reason to assume, for example, that the basic conceptions held by Marton and Biggs with regard to their respective learning approaches are equivalent. He argues that because these two researchers based their conceptions of learning approach on research that employed quite different methodologies and samples it is highly possible that the conceptions are fundamentally different.

Regardless of the validity of comparing findings from the phenomenography and the inventory based studies these approaches provide two alternative frameworks upon which investigation into student learning can be based.

The assumption that learning approaches can only be fully understood within the context in which the learning occurs is central to the theoretical perspective of phenomenography. This assumption rather than empirical evidence appears to have provided the basis for the conclusion that learning approaches exhibit situational specificity. Only three studies were located which did provide empirical evidence to support this conclusion. It is this gap in the literature which this thesis addresses.

Using a qualitative methodology inspired by the phenomenographic studies reported in this chapter the approaches and learning outcomes of a group of tertiary students in three separate situations requiring learning from academic text are examined to establish the nature and extent of any situational variablity exhibited. Factors such as text difficulty, level of motivation, test expectation, gender, conception of learning and self image as a reader and learner which the literature reviewed in this chapter suggested may contribute to the variability detected were also investigated. Full details on how this investigation was undertaken are given in the following chapter.

Chapter Three

METHOD

Introduction

This chapter describes the participants and research design used to investigate the learning approaches of a group of second year university students who were set tasks requiring learning from text as part of the assessment activities in three separate but concurrent courses.

Theoretical Perspective

An essentially qualitative research design was used. This is because qualitative research approaches enable data on the nature of learning to be collected in a manner that can give rise to new theoretical positions while retaining the essential relationship of the data to the learning context. This is important for it is the researcher's belief that without due regard for the context of learning the nature of learning can not be fully understood as it is the context that provides the parameters within which the cognitive processes must operate. Miles and Huberman (1984) note:

> " Qualitative data are attractive. They are a source of well-grounded, rich descriptions and explanations of processes occurring in local contexts. With qualitative data one can preserve chronological flow, assess causality and derive fruitful explanations. Then, too, qualitative data are more likely to lead to serendipitous findings and to new theoretical integrations; they help researchers go beyond initial preconceptions and frameworks." (p. 15)

This study was strongly influenced by the phenomenological studies reviewed in Chapter Two. These studies considered the content as well as the context of learning (Marton & Saljo, 1976a). For this reason their findings are commonly considered to have particularly high ecological validity (Entwistle & Hounsell, 1979). This was the rationale in this study for including those features of these studies that ensured the collection, interpretation and

analysis of learning approach data were not divorced from the content the students learnt or the context in which this occurred. Random sampling techniques and sophisticated descriptive and inferential statistic analysis techniques were not used.

Ecological validity is further enhanced by acknowledging that students are self-aware and experienced learners (Boch, 1986) who are capable of providing accurate data on their learning behaviour (Entwistle & Hounsell, ibid). This assumption, which underscores all phenomenographic studies, is also the rationale for utilizing the students' experience of learning as the primary data source in this study and approaching the study as a collaborative activity between participants and the researcher.

Because phenomenography is essentially experiential and phenomenal (Marton, 1978, quoted in Marton & Svenssen, 1979), the nature of the data is not anticipated by predetermined classification systems. Coding categories emerge from the data gathered in a given study. Such inductive purity, while a hallmark of the early studies, seems less realistic now given the wealth of evidence that has subsequently corroborated many of the central findings of the first phenomenographic studies on tertiary students' learning approaches.

Such an approach also assumes that the researcher can collect and analyse data in a conceptual and theoretical vacuum. This 'tabula rasa' view of inquiry is considered by many to be largely indefensible (Haig, 1982) because in reality the collection and analysis of data will always be informed by some preconceptions. For example, researchers inevitably have preconceived notions of what constitutes data and how data can be effectively collected and recorded.

The question is essentially not one of induction versus deduction but at which point and to what degree are assumptions and framing ideas brought to bear on the proceedings (Miles & Huberman, ibid).

As this study used questionnaires as the primary data collection tool assumptions about the most potentially fruitful fields for data collection were necessary from very early in the design phase.

The research perspective underpinning this study, while sharing the key phenomenographic tenets of ecological validity and a learner-centred perspective, was therefore more consistent with the retroductive approach proposed by Haig (ibid).

Participants

Selection

Early in 1990 a research proposal (Appendix A) was presented to the Vice Chancellor of Lincoln University for his approval. Upon gaining this approval the proposal was circulated among the teaching staff of the university and then discussed and approved by the Board of Studies. A meeting was called for interested staff to explore the possibility of their participation. As a result of this meeting the lecturers responsible for three second semester stage two courses in the Bachelor of Parks and Recreation Management programme indicated that they would like to take part in the proposed study and would undertake to seek the participation of their students.

The students from the two core year two courses, Management 206 and Leisure Theory 201, and the smaller, optional Landscape Design 209 course subsequently indicated that they would like to participate. In the core classes 90 students were concurrently enrolled in both courses. Of this intersection group 23 were also concurrently enrolled in Landscape 209.

As the aim of the study was to investigate situational variability the group of 23 were identified as the primary focus because their learning behaviour could be studied in three concurrent courses. However 23 is a relatively small number so a research design was developed to include the 67 who were

concurrently enrolled in the two core classes. This enabled 90 students to be studied in two situations and 23 of these to be studied in a third situation. The terms sample (N=23) and super-sample (N=90) were assigned to these groups.

It is important to note that, while the terms super-sample and sample are being used to denote the two groups, this does not imply that a random sampling technique was used. Selection was determined in the first instance by the desire of lecturers to participate in the proposed study.

Participant Profile

Table 4 compares the composition of the sample and super-sample. It is important to bear in mind that the sample is a subset of the super-sample.

Table 4

Super-sample and Sample Composition Compared.

Feature	Super-sample N=90	Sample N=23 *
Av. age (years)	21.00	20.00
male (%)	47.00	39.00
Female (%)	53.00	61.00
Pakeha (%)	98.00	96.00
Maori (%)	0.00	0.00
Asian (%)	2.00	4.00
1 yr previous full-time study	66.00	87.00
2 yrs previous full-time study	31.00	13.00

* This is a subset of the super-sample (N=90).

The data summarized in Table 4 indicates that the sample was fairly representative of the super-sample with regard to ethnic composition but slightly less so with regard to gender composition, previous full-time tertiary study and age.

The sample did not distinguish itself from the super-sample in terms of previously completed tertiary qualifications but a distinction could be made

in terms of the school entry qualification. Proportionately fewer members of the super-sample had either an A or B Bursary compared to those in the sample.

The occupation of the primary family income earner during students' school years was coded using the Elley-Irving Socio-Economic Indices (Elley & Irving,1985; Irving & Elley, 1977) to provide an index of the socio-economic status of individual students during their formative years. Comparison of the distribution for each sample was then made with the distribution produced by the 1981 Census data. This comparison revealed that in both samples proportionately more students came from homes where the primary income earner held a professional position or was a farmer. Similar findings have emerged from an ongoing study of the socio-economic status of University of Auckland students. (Jones, 1990).

The primary reasons cited by members of the super-sample for enrolment in the Bachelor of Parks and Recreation Management programme varied. This variation was mirrored in the sample. Approximately 75% of both indicated that gaining a qualification for employment was either the sole or one of two primary reasons for enrolment. The remainder of students cited an array of reasons including "personal development" and "a means of getting away from home."

Virtually all students in the super-sample who recalled receiving study skills tuition considered the assistance they had gained to have been insignificant. Of those that considered the tuition they had received had been of benefit, the one to one and group study skills programmes at Lincoln University were valued most highly.

The personal profile data reported here suggest that the majority of participants in this study had enrolled at Lincoln University straight from school and were primarily seeking a qualification for employment. Comparison of the super-sample and sample reveals that the sample was very similar to the super-sample but contained a higher proportion of both

secondary school high achievers and relatively less experienced tertiary students. These less experienced tertiary students were, on average, a year younger than the sample as a whole.

The similarily of the features of sample to those of the super-sample plus the fact that differences may have, at least in part, been due to the small size of the sample prompted the conclusion that the sample was fairly representative of the super-sample. It was therefore reasonable to assume that patterns detected in the learning behaviour of the super-sample would also be evident in the sample.

Research Design

Overview

As noted in the earlier in this chapter, this study was not essentially phenomenographic in design but shared a number of features with the phenomenographic studies discussed in Chapter Two. Firstly, this study focussed upon short term learning from text. Students were asked to read three set course readings and were then examined on their understanding of the content of each reading. Secondly, while the tests were followed by questionnaires instead of the indepth interviews typically employed in the phenomenographic studies, these questionnaires also required students to give retrospective reports on how they prepared for each test. These questionnaires included open questions designed to give students scope to frame their own responses. Coding categories could then be generated from the students' responses in a similar fashion to the phenomenographic studies.

Upon the completion of this phase of the study students completed the Approaches to Studying Inventory. Interspersed among these activities were feedback sessions, discussion and informal, semi-structured interviews.

The most distinctive single feature of the research design was the use of emergent coding categories and patterns from a sample (N=90) to produce predictions that were assessed against data from a subsequent learning

situation involving a subset (N=23) of the participants. The predictions covered learning approaches, the associated test outcomes and factors influencing the overall learning process.

Clearly, the success of this research project depended upon the participation of the students. A collaborative view of the student-researcher relationship was modelled to encourage student participation and promote a sense of collective responsibility for the outcomes of the research. Opportunities for students to discuss the project and make suggestions were included at each stage.

Research Questions

The study addressed the following questions:

1. What are the characteristics of the learning approaches reported by the students?
2. How does learning approach vary from one learning situation to another?
3. What are the characteristics of the written outcomes produced?
4. How do outcomes vary from one situation to another?
5. How are the approaches and outcomes related?
6. Which situational or personological factors are associated with the approach and/or outcome stability or variability?

Instrumentation

A. The Readings.

Students in Management 206, Leisure Theory 201 and Landscape design 209 were each supplied with one of the required course readings to study by the respective course lecturer and informed that it would be examined in a closed-book test worth 5-10% of their internal assessment mark. They were told on each occasion that the test would be twenty minutes long and contain questions designed to establish what they had learned from the reading. No further details were given about the nature of the test questions.

This approach was taken to minimize the effect of known test content upon students' study approach. It was anticipated that students would be encouraged by the lack of format clues to focus upon the content of the respective readings or independently establish the probable test demands and modify their focus accordingly.

The readings at the heart of this research varied in length and complexity (See Appendix B). All fulfilled two selection criteria specified by the researcher. Firstly each presented a central argument with subordinate, substantiating illustration and elaboration. Secondly each addressed themes that were an integral part of the course of study but on which the students had not received any prior tuition. The first criterion ensured there was scope for the content of each reading to be processed at both a surface and/or deep level. The second criterion sought to reduce the influence of prior knowledge so that the learning that occurred could be reasonably assumed to have been derived from the reading alone.

B. The Tests.

The tests associated with each reading (Appendix C) were all conducted within a week of each other at the start of the second semester. In this way students were equally familiar with each lecturer and the content of each course. In each case students were unaware of the respective lecturers' expectations and assessment style as each test represented the first assessment activity in each course. They were aware, however, that the three assessment tasks were the focus of a research project.

Each test consisted of one open ended question which was designed to be as cue-free as possible. The rest of the test was varied in each case to address the assessment priorities of the lecturer and to minimize the similarity of the three tests and therefore the effect of familiarity. Even so cross-test influence was anticipated so feedback on its nature and extent was sought from the participants in the questionnaires.

In test two the second part of the test contained questions that were relatively more closed than in either test one or three. To avoid the cues in these questions assisting the answering of the open question the open question was displayed separately and the students' responses to this question collected before the remaining questions were released.

In each case lecturers prepared the test questions in consultation with the researcher who had previously provided each lecturer with examples of questions that had previously been used to establish the nature of student learning from text. This approach was taken to ensure that question one in each test provided adequate scope for students to write freely with minimal direction. Only responses to this question in each test were analysed.

Every effort was made to provide assessment situations consistent with the lecturer's usual approach. Printed answer forms or standard answer books were provided and the tests were conducted in the same fashion as all other closed-book examinations.

C. The Questionnaires.

Following each test the students completed a two part questionnaire. (See Appendix D). The first part sought personal details while the second asked students to give retrospective accounts of the activities they had undertaken when preparing for a particular test and to quantify and explain the influence of a range of factors such as motivational level and perceived text difficulty.

A list of possible study behaviours, designed to focus students' attention on the sorts of activities that they might report, was included in the first questionnaire. This was separated from an initial prompt question to encourage a novel response to the second question. Only the response to the second question was then analysed The decision to include initial prompting was made following two trial interviews which revealed that students recalled the study activities they had engaged in much more quickly if some initial assistance of this sort was given.

The data fields addressed by the questionnaires were established by preliminary discussions with five tertiary students about the factors which influence the manner in which they learn from text and through reference to the literature. Students' perceptions of the required outcomes (Marton & Saljo, 1976b), motivation (Fransson, 1977), concept of learning (Van Rossum & Schenk, 1984), task perception (Meyer, 1988), intention and strategy (Gibbs, 1979; Fransson, ibid; Marton & Saljo, 1976a; Ramsden & Entwistle, 1981; Svensson, 1977; Van Rossum & Schenk, ibid; Watkins & Hattie, 1981) and anticipated test format (Thomas, 1986b) have all been demonstrated to be integral parts of a learner's approach to learning from text. Open questions within the retrospective questionnaires, feedback and discussion sessions and informal discussions and interviews were designed to provide additional data and balance the potential restrictiveness of this type of instrumentation particularly with regard to the provision for dialogue between researcher and student.

The students were orally instructed by the researcher to respond as comprehensively as possible to all questions. They were asked to give detailed explanations on how they performed the behaviours they reported. Individual assistance was then given to those students who required further clarification.

The use of questionnaires as the primary instruments for data collection represented a significant departure from the intensive interview approach employed in most of the phenomenographic studies. Their use enabled the amount of additional student time required to be minimized as each questionnaire could be administered to an entire class in a scheduled lecture time. They could also be administered in a standardized fashion and provided a standard format for students' responses. A degree of construct and context validity was therefore sacrificed in order to gain a higher degree of manageability and comparability than can be afforded by interviews.

D. The Approaches to Studying Inventory.

In a separate lecture session the students in the first of the two large core completed a fourth questionnaire. This asked for additional personal details and was attached to the Approaches to Studying Inventory (Ramsden, 1983). (See Appendix E). It is recognized that, in addition to being based upon fundamentally different assumptions about how learning can be described (Marton & Svensson, 1979), such inventories assume that students exhibit uniformity in their learning approaches[1]. The inventory was included in this study to provide additional data on the approaches of those students that the qualitative analysis revealed exhibited a high degree uniformity of learning approach across the three learning situations.

E. Feedback and Interactive Procedures.

The provision for feedback and dialogue between the participants and the researcher was an integral part of the study design. Both group and individual sessions were used. The format for each varied.

Following the administration of the first and third questionnaires students were encouraged to provide feedback on the research process and give further clarification of any of their responses. In addition, the first questionnaire asked respondents to comment on any questions that were problematic. These procedures were included in the research design to enable the experience of each assessment episode to inform the next. In this way the research design sought to be flexible and responsive to the experience and perceptions of the participants.

[1]The differences between the phenomenographic and psychometric approaches to the study of learning are discussed more fully in Chapter Two.

Following the completion of the fourth questionnaire the researcher fed back to the participants the patterns that had emerged from the analysis of the responses to question one in each test and related these to the data gathered from the retrospective reports. Short, informal, unstructured discussions were then held with those individuals who felt they did not fit any of the patterns described. A number of individuals participated in these discussions, providing additional data that assisted the interpretation and analysis of their responses in the tests and the questionnaires.

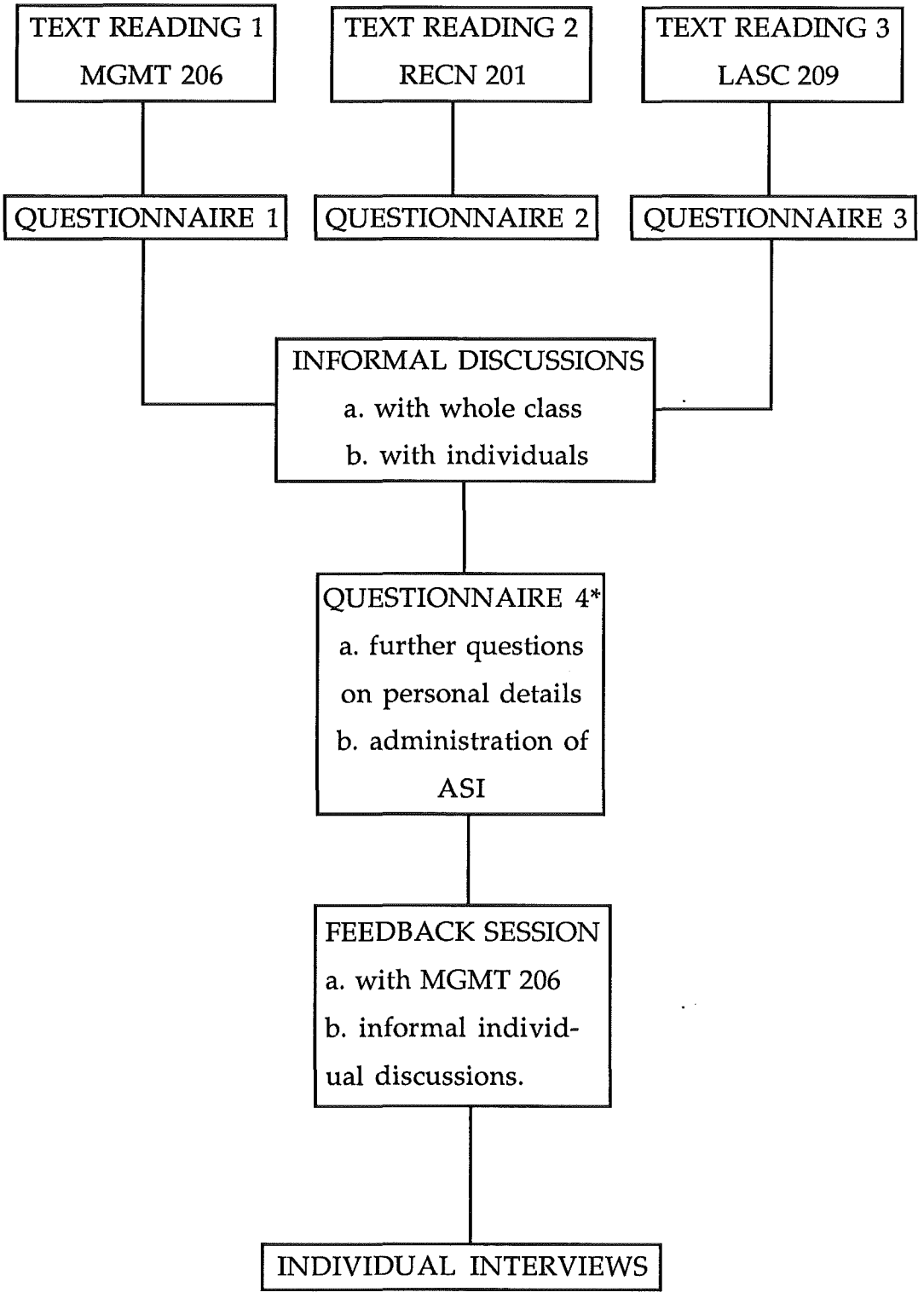
Finally, individual interviews were conducted. In these each student was encouraged to challenge or clarify the overall profile which emerged from the data gathered about them. Only six students took advantage of the opportunity to discuss their personal profiles as the time allocated for these individual interviews inadvertently coincided with the Student Association elections.

Feedback and site critique, while providing avenues for corroboration (Miles & Huberman, ibid), were considered to be obligatory given the collaborative approach used by the researcher. Stake (1976, quoted in Miles and Huberman, ibid) endorses this notion, arguing that such procedures are not a matter of choice because informants have the right to know the findings of any study they have contributed to.

The research activities and their relationships to each other are summarized in Figure 1. These activities were completed over one semester.

Figure 1

Summary of Research Activities.



* This questionnaire was completed by the students in MGMT 206.

Analysis

Data Produced

This study produced five sets of data:

1. Written test responses from three learning situations.
2. Retrospective reports on study approach from three learning situations.
3. Personological details.
4. ASI scores.
5. Student feedback.

Analysis Procedures.

Data analysis occurred in three phases. In phase one the data generated by the super-sample (N=90) in the first two learning situations were analysed to generate coding categories and identify group patterns. From these patterns predictions about the students' learning behaviour were formulated. In the second phase of analysis the data gained from the sample (N=23) in a third learning situation was examined to establish how well these predictions predicted for their learning behaviour.

Coding categories and patterns were produced by a process of constant comparison (Glaser & Strauss, 1967). This involved the tentative coding, cross-checking and recoding of student responses to produce a grounded classification system which allowed the data to be systematically reduced.

The data from the retrospective reports and the written test outcomes from all three learning situations were coded twice by the researcher to test coding reliability. A recoding reliability of at least 90% was sought and achieved. Written test outcomes from the first learning situation were also subjected to a partial coder reliability test by a second coder who independently coded a random sample (10%) of the test responses using the same coding criteria. An inter-coder reliability of at least 90% was sought and achieved.

Lecturers independently assessed the test responses on a one to five scale using criteria which were not disclosed to the researcher. The marks on the

scripts were concealed to ensure that they did not influence the qualitative analysis subsequently undertaken by the researcher. Once the researcher had completed her coding these marks were compared with the outcome classification assigned to each outcome using the classification system that emerged from the comparative, qualitative analysis of the whole group's (N=90) scripts.

The approach and outcome data were separately analysed. This meant that the relationship between the outcome and reported approach was treated as external[2] rather than interdependent. This does not reflect the rejection of the notion that a direct causal relationship exists between approach and outcome (Biggs, 1978). Instead it reflects a concern that such relationships should be identified rather than assumed.

The emergent classification systems were analysed from two perspectives. Firstly the frequency distributions of codes within each course were identified and scrutinized for patterns. Secondly individual student profiles were generated. In this way both group and individual learning behaviour were summarized.

The patterns that emerged from the analysis of individual and collective data were subjected to causal analysis. This involved exploring the findings for evidence of temporal precedence, constant conjunction and directional influence. Verification of the streams within the causal network that emerged from the findings of the study of the super-sample was sought by comparison with the findings of the sample and through the field critique facilitated by the feedback sessions and interviews.

[2]When considering the relationship between two phenomena data can be collected independently on each and then compared to see how the two phenomena combine. Such analysis is said to assume that the relationship between the two phenomena is external (Marton & Svensson, ibid).

The third and final phase of analysis involved the comparison of individual students' ASI sub-scale scores with the learning approach profiles produced from the remainder of the study.

Throughout this study simple descriptive statistical analysis procedures were used. These involved the generation and consideration of mean scores and frequency distributions. The application of sophisticated tests of association and significance were neither consistent with the theoretical perspective nor justified given the method of selecting the two groups, the nature of the data and the small sizes involved.

Chapter Four

RESULTS

Introduction

This chapter presents four sets of results. The first three were obtained from the essentially qualitative part of the study while the fourth set was produced using a psychometric tool. The four sets are:

1. The classification systems and associated factors that emerged from the analysis of data on learning approach that was gained from the retrospective reports, discussions, feedback sessions and interviews and the data on learning outcome gained from the analysis of written test scripts.
2. The patterns that were identified when a collective analysis was undertaken of data from the first two learning situations using these classification systems and factors.
3. The findings generated when predictions derived from these patterns were used to predict the learning behaviour that occurred in the third learning situation.
4. The findings of the ASI for the sample (N=23).

The organisational framework of this chapter follows the sequence of the research questions listed on page 34 in Chapter Three. Classification systems, patterns, predictions and findings (i.e., result sets 1-3) are reported where appropriate for each research question. These are followed by a separate section which presents the results of the Approaches to Studying Inventory (i.e., result set 4).

What are the Characteristics of the Learning Approaches Reported by Students?

Definitions.

As stated in Chapter Two, learning approach was defined for the purposes of this study as:

> "the combination of motive and strategy a learner applies to a learning task."p4.

The term strategy refers here to the combination of learning activities employed by learners when learning from text for a test. It embraces both component processes and a routine for organizing these processes (Garner, 1988).

To establish the nature of the students' learning approaches motives, study activities, the strategy (i.e., the combination of study activities) and the learning foci directing the strategy were considered. The learning approaches were then described in terms of these features. Also noted were factors which suggested that the students' learning approaches had stylistic dimensions.

Motives.

Students reported three types of motive or intention. These were:

1. Quantitative Motive.

   This was characterized by a desire to gather and retain as much information from the text as possible. The information sought tended to be discrete details such as definitions, quotes and concepts.

2. Qualitative Motive.

   This was characterized by a desire to understand the text rather than discrete details contained within it. Two forms of qualitative motive were identified:

a. The first was a desire to understand so that an overview could be obtained.

b. The second was a desire to gain a comprehensive understanding.

3. Composite Motive.

   This was characterized by a desire to understand the text and gather and retain information to use in the test to illustrate or provide evidence of this understanding. As such it represented a combination of both quantitative and qualitative motives.

The motive classification that emerged from the first two situations was found to be equally applicable to the motives reported in situation three. Listed below are examples of each type of motive drawn from the

retrospective reports about learning for test three.

1. "To learn (cram) as much information in as little time as possible"

2a. "I tried to grasp the main point of the reading so that I knew what it was about and could put it into my own words in shortened form."

2b. "An overall understanding of the author's intentions and the important theories of the article."

3a. "Tried to get an overview of what the design process was. Note key points, lists etc."

3b. "An overall understanding of the paper. Tried to break it down further by picking up the theories and concepts .... Trying to remember ..."

Prediction 1:

The most commonly reported motives will be qualitative motives.

This prediction was confirmed by the data gathered from students in the third learning situation. Table 5 contains the frequencies of each of the three main motive classifications for the three learning situations.

Table 5

Reported Learning Motives.

	Situation		
	1	2	3
Motive	N=90	N=90	N=23
Quantitative	23 (21%)	12 (13%)	3 (13%)
Qualitative	40 (44%)	55 (61%)	14 (61%)
Composite	27 (30%)	23 (21%)	6 (26%)

The motives reported by students in all three situations gave no evidence of intrinsic motivation. The following were typical responses to the question asking students to identify what they were trying to achieve when studying:

"Get maximum marks by learning the article as best as possible."

"Pass the test ..."

"Was trying to achieve a sufficient understanding which would gain a good mark."

"Because it was worth 5%, I wouldn't usually read the article in depth ... When an article is not for a test like this I would just skim read them."

It was clear from the questionnaire data, the data gathered in the feedback and interview sessions that the overriding motivation for the majority of students was extrinsic; to provide the lecturer with what he or she required and in so doing pass the test. In explaining the reasons for approach variations between the first two learning tasks five students did indicate that interest impacted upon their motivation but the effect was essentially to change the level of reported motivation rather than its nature.

Study Activities.

The analysis of the retrospective reports for the first two classes revealed a fairly extensive array of study activities. These activities were classified according to the function that they primarily served. Four functions were identified; comprehension, focussing, reduction and consolidation. This classification system was found to be equally applicable to the learning activities reported for situation three. No additional activities were reported for this situation. Table 6 lists the study activities in order of decreasing frequency under the primary function each served.

Table 6

Study Activities.

Comprehension	Focussing	Reduction
Skim read article first	Highlighted during first reading	Listed highlights
Read article in depth once	Highlighted after first reading	Discarded some highlights
Read in depth several times	Wrote notes during reading	Summarized from highlights
Read sections at separate times	Wrote notes after first reading	Summarized notes
Read first and last sections	Discussed article with peers	Sought author's summary
Read another student's notes	Paraphrased after each section	Discussed with peers

Consolidation
Skim read article
Rewrote highlighted sections
Rewrote notes
Recited notes
Repeated rereading
Reread in depth once
Discussed with peers
Self questioning
Learnt whole sections by heart
Replayed tape of article
Visualized the position of main ideas

In addition to providing the means for gaining information and understanding from the text, the comprehension activities were used to make an initial assessment of the complexity and probable skill demands of the text. Students' comments revealed that this information often prompted a reassessment of their level of motivation.

Focussing activities such as highlighting were primarily concerned with assisting attention and reading comprehension rather than recall. One student noted:

> "... if I'm actively highlighting as I go along I tend to concentrate better."

Such highlighting was not always part of the reduction activities. A number of students 'reworked' the article after the initial highlighting to generate the material they would subsequently attempt to understand more fully or submit to memory. It was this 'reworking' that reduced the text to a form that could be learnt and in so doing the activities involved were primarily designed to identify either the central argument or key points.

The terms 'key point' or 'main idea' were frequently used by students, often interchangeably but it was clear that the meaning of each term varied from one individual to another. For many students either term was used to refer to discrete propositions in the text while for others the terms referred to one of a series of propositions that collectively formed the central argument of the text.

Consolidation took two forms. It either involved strengthening the extent or accuracy of material that could be recalled or the understanding of the text as a whole or, alternatively, strengthening the recall of products from the reduction processes. Typically students who consolidated their learning in the first manner returned to the text to check their learning. In contrast those who consolidated their recall of the products of their reduction activities were less likely to return to the text to check their learning.

Activities from the four functional groups contained in Table 6 were combined by students to produce strategies in a variety of ways. Some students did not include activities from all four functional groups suggesting that either some activities actually served more than one function or that all four functions were not addressed in their strategies. Several, for example, relied entirely upon reading and rereading the text, using this activity to achieve comprehension, reduction and consolidation. This approach was often accompanied by a quantitative motive and a low level of motivation.

The relationship between the study activities undertaken and the stated motive was most obvious in the selection of reduction and consolidation activities. Students with quantitative motives tended to engage in a comprehensive series of reduction activities and use the product of these as the basis for consolidating their learning. Repeated rewriting of lists of points was a very common consolidation activity for these students who commonly did not return to the text as a whole during the consolidation phase of their learning.

Prediction 2:

Students reporting quantitative motives will engage in more reduction activities and rote learning than those reporting either qualitative or composite motives.

Analysis of the data on motive from test three revealed that Prediction 2 was not entirely predictive of this data. The level of activity was clearly linked to the amount of reduction and rote learning undertaken. This in turn was closely associated with the level of motivation reported.

Many of those who reported qualitative motives engaged in relatively little reduction activity and/or repetitive consolidation. They tended to rely on rereading the text either in depth or skim reading. However, some students reporting low levels of quantitative motivation reported similar strategies to those reporting qualitative motives. This illustrates the necessity of distinguishing between type and level of motivation and highlights the need to consider each characteristic of learning behaviour within a wider context.

Study Foci.

From the combination of activities and details relating to how these activities were undertaken three study foci were determined:

1. A focus on the details contained in the article.
2. A focus on the central theme or argument to gain an overview of the article .
3. A holistic focus, focussing concurrently on the detail and central theme or argument.

Student reports revealed 60 (N=90) students in situation one and 55 (N=90) in situation two did not maintain a single focus throughout their study. Most, however, provided evidence suggesting that one of the above foci was predominant. For most students the foci they revealed closely corresponded to their reported motives but this was not always the case. In situation one eight (N=90) students reported inconsistent motive-focus combinations while

14 (N=90) did so in situation two.

For five (N=8) of these students in situation one and eight (N=14) in situation two the reported level of motivation helped to explain the inconsistency between motive and actual focus. These students all reported low motivation and expressed a lack of willingness to put in the effort necessary to achieve their stated motive. For those reporting lower motivation in the second situation, compared to the first situation the drop in motivation was associated with a shift in primary focus from the central theme or argument to the details. The reverse was not evident, however.

Comparison of the primary and secondary foci combinations for each student in the two tests revealed that only 17% had the same pattern of focus in both tests. An additional 27% had the same primary focus but varied their secondary focus. This meant that overall 57% of the sample exhibited an entirely different focus pattern in each situation.

Of those revealing the same focus combination in both tests 60% reported the same level and type of motivation. This compared with only 42% of those with the same primary focus in both situations.

This data prompted Prediction 3 but it was considered unnecessary to apply this to the data from situation three as the prevalence of focus variability had already been established for the members of this class across situations one and two. Inter-task focus variability was evident in the retrospective reports of 13 (N=23) of these students.

Prediction 3:
Inter-task focus variability will be more common than consistency.

Prediction 4:
A single learning focus will not be maintained throughout a learning task.

Intra-task focus variability was identified for 18 (N=23) students. In each of the five cases where Prediction 4 failed to predict learning behaviour very little study activity was reported and a focus upon detail was maintained throughout the short study period. The following is an extract from the retrospective study report of one of these five cases where a single study focus was evident.

> "Copied out some highlighted bits, these bits were not actually highlighted by myself but a close friend of an acquaintance. I read these notes during dinner ..."

When the nature of the material studied by this student was investigated it was found to contain a series of discrete statements that did not provide an overview of the authors intention or argument.

Approaches.

As noted in the previous section, the stated motive was not always reflected in the reported strategy. This inconsistency between motive and strategy suggested that either students were not accurately reporting their motive or strategy or that an intervening variable was preventing their motivation from being realized in their learning strategy. Regardless of the reason the presence of a small group of students in each situation who did not have consistent motives and strategies challenged the working definition of learning approach.

Data was gathered in the informal interviews from five students who had reported inconsistent motive-strategy combinations. In all five cases the data revealed that these students had ideal motives and actual motives. The following two explanations were typical of those given by these students who all stated qualitative motives but reported quantitative approaches characterized by attention to memorizing detail rather than understanding. In both cases the stated motive was "to understand the reading."

> "... well it wasn't really an understanding ... in the end I just wanted to get the main points I suppose ..."

> "The most important thing is to get something to write down in the test so I go for the main points in each section .... I try to understand these but remembering them is what I'm really trying to do."

These sorts of explanations support the conclusion that a variable associated with the content or context of the learning task intervenes between motive and strategy and results in a modification of the motive.

When the motives of those students with inconsistent motive-strategy combinations were identified from their reported behaviour rather than their stated motives all students could be assigned to one of the following six basic approaches.

1. Restricted Detail Approach.
   This type of approach was characterized by limited reduction and/or consolidation activities, a detail focus and a quantitative motive.
2. Restricted Summary Approach.
   This approach was characterized by limited reduction activities, a focus on the central theme or overview and qualitative motive.
3. Restricted Holistic Approach.
   This approach was characterized by limited reduction, a holistic or consecutive overview and detail foci and a qualitative motive.
4. Elaborated Detail Approach.
   This type of approach was characterized by study activities from all four functional groups, a detail focus and a quantitative motive.
5. Elaborated Summary Approach.
   This approach was characterized by study activities from all four functional groups, a focus on the central theme or overview and a qualitative motive.
6. Elaborated Holistic Approach.
   This approach was characterized by study activities from all four functional groups, either a holistic focus or consecutive overview and detail foci and a composite motive.

Based upon the data from situations one and two Predictions 5 and 6 were formulated.

Prediction 5:
Elaborated learning approaches will be more commonly reported than restricted learning approaches.

Prediction 6:
An elaborated detail approach will be the most commonly reported learning approach.

Table 7 displays the learning approach distributions for the three situations which show that the distribution of learning approaches shown for situation three was predicted by Predictions 5 and 6.

Table 7

Learning Approach Distribution.

	Approach					
Test	1	2	3	4	5	6
1	9(10%)	12(13%)	10(11%)	31(34%)	19(21%)	9(10%)
2	5 (6%)	9(10%)	15(17%)	29(32%)	16(18%)	16(18%)
3	3(13%)	4(17%)	2 (9%)	9(39%)	3(13%)	2 (9%)

Students reported different levels of activity but this activity was not always a uniform feature of their approach. For example, a student might report active consolidation activities but essentially passive reduction activities.

Engagement, the active and critical consideration of the meaning and implications of the contents of the text, was a special form of active learning which was only undertaken by some students. The nature and extent of engagement varied. Some students sought to explain previous experience in terms of the ideas presented in the text while others actively considered the

validity of the author's perspective in relation to other bodies of knowledge and established a personal point of view. There was not any evidence to suggest that a student who reported engagement in situation one would do so again in situation two. It was only when considered against the students' assessments of text difficulty that any pattern in the data on engagement could be identified. This will be discussed later in this chapter.

Cognitive Style.

A number of students reported approaches characterized by a high level of reflective activity. This was particularly true for those students who had commenced their study several days before a test. The following is an excerpt from one such student's report on the strategy employed while studying for test one.

> "I read it early so I could think about it for a while. (2 weeks ahead)."

The overall impression gained was that engagement and reflection represented stylistic components of the students' learning approaches. Discussions with students provided evidence that some students clearly organized their study activities in a logico-deductive fashion which would suggest a high degree of field independence while others showed a more holistic approach which is consistent with a field dependent style (Witkin & Goodenough, 1982) .

How Does Learning Approach Vary From One Learning Situation to Another?

The data summarized in Table 8 show the extent and nature of the approach changes that were reported between situations one and two.

Fifty five percent of the students reporting a detail approach (i.e., approach types 1 and 4), 42% of those reporting an overview approach (i.e., approach types 2 and 5) and 47% reporting an holistic approach (i.e., approach types 3 and 6) in situation one did so again in situation two.

Table 8

Frequency Distribution of Approach Combinations Across Situations One and Two. (N=90).

		Situation 2 Approach					
		1	2	3	4	5	6
Situation 1	1	2	1	1	4	1	0
	2	1	1	4	3	4	0
	3	1	1	4	1	0	1
	4	1	1	1	15	8	5
	5	1	2	3	3	7	4
	6	0	1	0	3	2	3

The data in Table 8 also show that only 10 (N=60) of those reporting an elaborated approach in situation one reported a restricted approach in situation two. This compared with 14 (N=30) who reported a resticted approach in situation one and an elaborated approach in situation two. This means that, although restricted approaches showed relatively low stability, 66 (N=90) or 73% of the students exhibited a similar level of elaboration in their approach across the two situations.

Individual approaches varied in their relative stability. The data revealed that the elaborated detail approach (i.e., approach type 4) was the most common as well as the most stable approach across the two situations. However, even given patterns of stability such as this, variability was more common. Overall the incidence of some form of approach variability was 70%.

Prediction 7:

Inter-task approach variability will be more common than inter-task approach stability.

Prediction 8:

The elaborated detail approach will be most common and show the greatest stability across the three learning situations.

Table 9

Frequency of Learning Approach Patterns (N=23).

Stable	f	Same Focus	f	Similar Elaboration	f
2-2-2	1	1-4-4	2	4-4-5	1
4-4-4	2			4-5-5	1
6-6-6	2			5-6-4	1
				6-4-4	1
				6-5-5	1
Variable.					
1-4-2	1	1-5-4	1		
2-1-4	1	2-4-4	1		
4-3-3	1	4-6-1	1	4-6-2	1
5-1-1	1	5-3-3	1	5-4-1	1
5-4-2	1				

The data in Table 9 reveal that the learning approach patterns for the sample (N=23) over the three learning situations was predicted by prediction 7. Variability in approach focus and/or elaboration was far more prevalent than approach stability, occurring in 18 (N=23) cases.

Prediction 8 was also confirmed. Only two members of the sample consistently used an elaborated approach while six used this type of approach on two of the three occasions. When this partial stability was taken into account the stability of the elaborated detail approach was greater than that exhibited by any other approach type.

What are the Characteristics of the Written Outcomes Produced?

Four qualitatively distinct outcome types emerged from the analysis of the students test responses in the first two tests. This classification system was subsequently found to be equally applicable to the outcomes from situation three. The characteristics of the four outcome types are given in Table 10. The focus refers to the primary focus while elaboration refers to the degree to which ideas were illustrated or explained.

Table 10

Outcome Profiles.

	Outcome Types.			
	S1	**S2**	**D1**	**D2**
Focus	superficial detail	detail	meaning	meaning/integratn.
Elaboration	insignificant	substantial	limited	substantial
Integrating theme	none	none	superficial	clear
Overview	none	limited	yes	well developed
Memorizing evident	some	substantial	limited	substantial
Personal synthesis	none	none	insignificant	some

Inspection of the outcome descriptions reveals that the first two outcome types share a focus on the detail given in the article while the latter two are concerned with presenting the meaning of the article. This is the same distinction as that made between surface and deep outcomes identified in the Gotenburg studies reviewed in Chapter Two. The D2 outcome, while concerned with the meaning of the article, was also typically concerned with detail but this detail was integrated into the central theme. The detail while clearly subordinate to the integrating theme was elaborated in a similar fashion to the detail in S2 outcomes. Both S2 and D2 outcomes gave evidence of memorizing of portions of the text. In contrast S1 and D1 outcomes were characterized by substantially less evidence of memorizing and so, on average, were shorter than S2 and D2 outcomes.

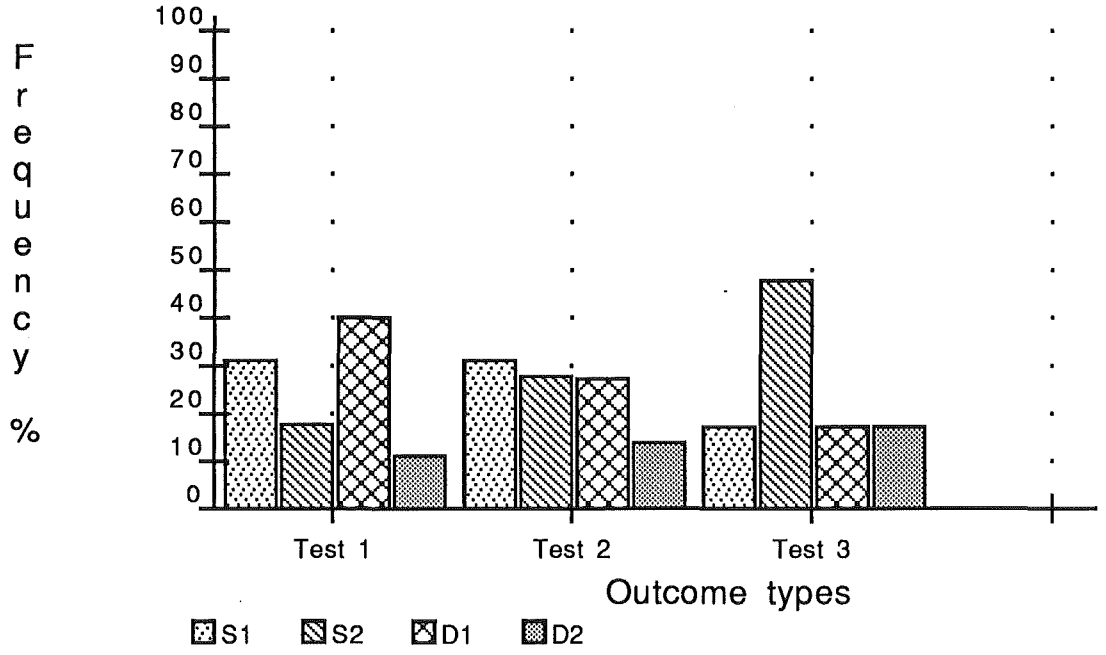
Figure 2 graphically presents the distribution of outcome types for the three tests. In the first two situations proportionately more students produced S1 and D1 outcomes (i.e., outcomes exhibiting low elaboration) than S2 and D2 outcomes (i.e., outcomes exhibiting high elaboration). This prompted Prediction 9.

Prediction 9:
Outcomes exhibiting low elaboration (i.e., S1 and D1) will be more common than those exhibiting high elaboration.

The data summarized in Figure 2 show that Prediction 9 did not predict the outcome distribution for test three. Unlike the first two tests, proportionately more S2 outcomes, which are characterized by relatively high elaboration, were produced compared to the other three outcome types.

Figure 2

Outcome Type Distribution (%) For Each Test.



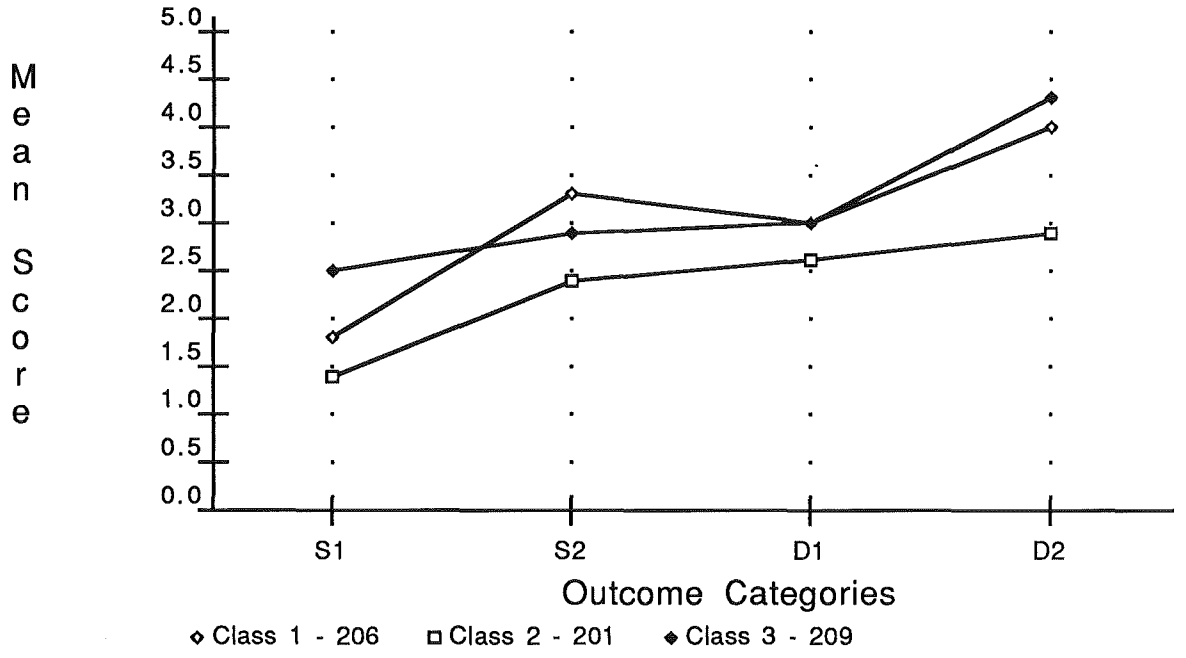
The most significant difference between the circumstances in test three compared to the other two tests was that students indicated that they were growing tired of learning for tests. The expected effect of this could have been to reduce motivation and the likelihood that students would take time to rote learn sections of the text but this was not found to be the case as was evidenced by the high number of S2 outcomes. Examination of data from the retrospective learning approach questionnaires revealed that the average motivation of the eleven students producing S2 outcomes was significantly higher than that for the other three outcome groups. When this phenomenon was discussed with two (N=11) students from this group they both indicated that they found both the course and the article they were required to read particularly interesting and this had had a positive influence

on the amount of time spent studying for this test.

A comparison was made between the outcome catergories that emerged from this study and the mark given by the lecturer. The comparison is presented graphically in Figure 3.

Figure 3

Comparison of Outcome Categories and Lecturers Marks.



On average the lecturers ascribed least value to those outcomes fulfilling the S1 classification and the greatest value to those fulfilling the D2 classification.The tendency for marks to plateau across the S2 and D1 classifications reflects the dilemma lecturers faced in determining the comparative value of answers that contain substantial but unrelated detail (S2) and those presenting a largely unelaborated overview or argument (D1).

How Do Outcomes Vary From One Situation to Another?

Table 11 which gives the percentage of those students producing a particular outcome in test one who produced each of the four outcome types in test two.

Table 11

The Relationship of Test One Outcomes to Test Two Outcomes.

		Test 2				
		S1	**S2**	**D1**	**D2**	**%**
	S1	46	18	29	7	100
Test 1	**S2**	25	25	31	19	100
	D1	28	36	22	14	100
	D2	10	30	30	30	100

Several observations can immediately be made. The first and most important is that learning outcomes exhibited variability. The most stable group was the group producing S1 outcomes in test one. Forty six percent of this group produced an S1 outcome in test two. Of those who produced S1 outcomes in test one but did not repeat this in test two the largest proportion produced D1 outcomes. This means that three quarters of those producing S1 outcomes in test one produced outcomes with the same level of elaboration in test two. (i.e., S1 or D1 outcomes).

D2 outcomes were produced most often in the second test by students who produced the D2 outcomes in the first test. Of the students who did not produce D2 outcomes in test one those that had produced an S2 outcome in test one had a higher representation in the D2 classification in test two than either those who produced an S1 or D1 outcome in test one. The S2-D2 combination was the least common of the four generated by those scoring an S2 in test one however. Fifty percent of the test one S2 group produced either S2/S2 and S2/S1 outcome combinations.

For some students a tendency towards elaboration level stability was suggested by the 75% in the S1 category in test one who produced either an S1 or D1 outcome in the second test and the S2-D2 association.

S or D band (i.e., S1+S2 or D1+D2) outcome stability was slightly more common than variability in those students who produced either S1 or D2 outcomes in test one. Outcomes in the same band were produced by 64% and 60% of the students who produced S1 or D2 outcomes in test one respectively. A different pattern was evident in the group who produced D1 outcomes in test one. Of this group 64% produced S band outcomes in test two. Within this group 57% also changed their level of outcome elaboration (i.e., D1-S2).

Table 12 provides a slightly different perspective on the data summarized in Table 11. It presents the frequency distribution (%) of outcome combinations for the 90 students sitting test one and test two. The most frequently occurring combinations were S1-S1, D1-S2 and D1-S1.

Table 12

Distribution of Outcome Combinations (%).

		Test 2		
Test 1	**S1**	**S2**	**D1**	**D2**
S1	14	6	9	2
S2	4	4	6	3
D1	11	14	9	6
D2	1	3	3	3

Overall the data from test one and two suggest three forms of outcome stability:

1. Outcomes are exactly the same outcome type.
2. Outcomes have the same focus band (i.e., S-detail or D-meaning).
3. Outcomes have a similar level of detail elaboration (i.e., S1-D1 or S2-D2).

One of these three types of stability was reflected in 93% of those producing an S1 in test one, 69% producing an S2, 64% producing a D1 and 90%

producing a D2. Overall 77% of the combinations produced exhibited one or more forms of stability.

Prediction 10:
Outcome stability in one of the three forms described will be evident in at least three quarters of the learning outcomes.

Table 13 displays the patterns of learning outcomes of the sample (N=23) across the three learning situations. These are grouped according to the type of stability they exhibit. Examination of these outcome patterns reveals stability in one of the three forms was exhibited by 13 (N=23) or 56% of the students' outcome patterns. This was not sufficient to confirm Prediction 10.

Focus band stability which includes those that produce exactly the same outcome was significantly more common than elaboration level stability across tests one and two.

Prediction11:
The most common form of outcome stability will be focus band stability.

This prediction was confirmed by the test three data. Of the 12 students who exhibited this sort of stability in the first two tests 10 did so again. Six (N=10) of these students produced exactly the same outcome on all three occasions.

Table 13

Outcome Patterns for Sample N=23.

S Band	*f*		*f*	
S1-S1-S1	3	S1-S2-S2	1	
S2-S2-S2	1	S2-S1-S2	2	Σ=7
D Band				
D1-D1-D1	1	D2-D1-D2	1	
D2-D2-D2	1			Σ=3
Elaboration				
S1-D1-D1	1			
D1-S1-D1	1	D1-D1-S1	1	Σ=3
No Stability				
S2-S1-D2	1	S2-D1-S2	1	
D1-S2-D1	1	D1-S1-S2	2	
D1-S2-S2	4			
D2-S1-D2	1			Σ=10

The data summarized in Table 13 shows that collectively stability in one of its three forms was slightly more common than variability. Fifty seven percent (i.e., 13/23) of the members of the sample exhibited at least one of the three forms of stability across the three learning situations.

What is the Relationship Between Approach and Outcome?

As noted earlier in this chapter, six distinct learning approaches were identified. When these were compared with the outcomes produced in tests one and two a number of clear patterns emerged. These are translated into Predictions 12 to 14.

Prediction 12:

S band outcomes will be most commonly produced by an elaborated detail approach.

Prediction 13:

D band outcomes will be seldom produced by restricted detail learning approaches.

Prediction 14:

D2 outcomes will be most commonly produced by approaches characterized by overview or holistic foci.

The total distribution of approach type in relation to outcome type for all three tests is given in Table 14. The total number of learning situations summarized is 203. (i.e., 90+90+23)

Table 14

The Relationship Between Approach and Outcome.

		Approach						
Outcome	**Test**	**1**	**2**	**3**	**4**	**5**	**6**	**Total**
	1	6	4	4	11	2	1	28
S1	**2**	5	2	5	10	4	2	28
	3	0	1	1	2	0	0	4
Subtotal		**11**	**7**	**10**	**23**	**6**	**3**	**60**
	1	1	0	1	11	2	1	16
S2	**2**	0	2	3	13	2	5	25
	3	3	2	0	6	0	0	11
Subtotal		**4**	**4**	**4**	**30**	**4**	**6**	**52**
	1	2	7	4	9	12	2	36
D1	**2**	0	0	4	5	7	8	24
	3	0	1	1	0	2	0	4
Subtotal		**2**	**8**	**9**	**14**	**21**	**10**	**64**
	1	0	1	1	0	3	5	10
D2	**2**	0	5	3	1	3	1	13
	3	0	0	0	1	1	2	4
Subtotal		**0**	**6**	**4**	**2**	**7**	**8**	**27**
Total		17	25	27	69	38	27	203

Examination of the approach/outcome analysis in Table 14 reveals that S1 outcomes were produced by students employing all six basic types of approach. What is not shown is that passive restricted approaches were associated with 54% and 64% of the S1 outcomes in tests one and two respectively. Of those who produced S1 outcomes in both tests all but one reported a passive restricted strategy. Most of these students failed to undertake any separate consolidation activities, relying instead on reading, focussing and essentially passive reduction activities to consolidate their learning.

Prediction 15:
Students who consistently produce S1 outcomes will report passive restricted approaches.

This prediction was strongly supported by the data from the third situation. Four participants produced S1 outcomes in situation three . Three had produced S1 outcomes in both previous tests. Two of these reported undertaking no active reduction or consolidation activities in addition to reading the required text. The third reported a slightly more active approach characterized by writing out underlined sections of the text to enhance recall but compared to other students the level of activity was relatively low.

In tests one regardless of the level of elaboration or the focus the reported approaches were characterized by either active reduction and/or consolidation study activities.

Prediction 16:
S2 outcomes will be commonly associated with active approaches.

The data from situation three was consistent with this prediction. In each case the the active approaches used in situation three were distinguished from those employed by students producing S1 outcomes by the extent of the reduction undertaken and/or the emphasis placed on consolidation

activities. The following report illustrated the emphasis on reduction and memorizing which was common among students producing S2 outcomes.

> "Two nights ago I reread and wrote down key points, words onto another 3 sides of A4 paper. Last night reread A4 paper committing to memory points, words, seeing major points of author. This morning condensed notes from A4 by memorizing and recall them onto another paper."

Active approaches were reported less often by those who produced D1 outcomes. In comparison activity was more characteristic of the approaches reported by those students who produced D2 outcomes. This overall pattern of activity gave rise to Prediction 17.

Prediction 17:
S1 and D1 outcomes will be associated with less active learning approaches than S2 and D2 outcomes.

The data from situation three confirmed this prediction. Only two (N=15) of approaches associated with S2 or D2 outcomes could be classified as passive.

D2 outcomes were not always associated with elaborated strategies. In test one two (N=10) of the strategies associated with D2 outcomes were restricted test. Eight (N=13) were restricted in test two. Separate reduction activities were most commonly absent from these strategies. Taken together these patterns from test one and two were not considered an adequate basis upon which to predict approach/outcome associations in situation three.

Table 15 displays the approach/outcome combinations for each member of the sample (N=23). The combinations are grouped according to the type of outcome stability exhibited accross the three situations studied.

Table 15

Approach/Outcome Combinations for the Sample (N=23) Across Three Learning Situations.

Approach 1	Outcome 1	Approach 2	Outcome 2	Approach 3	Outcome 3
		S Band Outcome Stability			
1	S1	4	S1	2	S1
1	S1	4	S1	4	S1
4	S1	6	S1	3	S1
6	S2	4	S2	4	S2
1	S1	6	S2	1	S2
4	S2	4	S2	4	S2
		D Band Outcome Stability			
5	D1	3	D1	3	D1
6	D2	5	D2	5	D2
6	D2	6	D1	6	D2
		Outcome Elaboration Stability			
4	S1	5	D1	5	D1
5	D1	4	S1	2	D1
1	D1	5	D1	4	S1
		No Outcome Stability			
4	S2	4	S1	4	D2
4	D1	4	S2	5	D1
5	S2	6	D1	4	S2
5	D1	1	S1	1	S2
4	D1	6	SI	2	S2
2	D1	2	S2	2	S2
2	D1	4	S2	4	S2
5	D1	4	S2	4	S2
2	D1	1	S2	4	S2
6	D2	6	S1	6	D2

Which Situational or Personological Factors are Associated With the Approach and/or Outcome Stability or Variability?

The questionnaires and interviews directly and indirectly explored a number of factors that the literature suggested influenced the nature of the approaches employed when learning from text. The question in each questionnaire seeking reasons for using a particular approach produced an array of reasons. The frequencies of these are given in Table 16. Caution must be exercised when comparing the two sets of data because of the high number of non-answers for text two.

Table 16

Reasons for Approach.

	Text 1 (%)	Text 2 (%)
Always use	37	19
Self knowledge	19	6
Response to test	15	7
Response to features of task	12	22
Response to constraints	7	3
Not motivated	3	0
Don't know	2	0
Motivation and time	1	1
Result of study skills advice	1	0
Usually works	0	6
Low priority course	0	2
Sick	0	1
Influence of last task	0	2
Non-answer	3	31
	100	100

Of particular interest here is the change from test one to test two in the percentage of students who reported their reason for using a particular approach as being "that they always use it." While some reported that the retrospective reports following test one had made them revise their approach to learning from text this explanation did not account for all of this shift. It is more likely that the explanation lies with the 31% following test two who failed to give an answer that actually explained why they had used the strategy they had employed for learning for this test.

Some students stated that they always used the same approach when studying from text but their retrospective reports did not support this claim. Most students, however, appeared to be aware of whether their approach varied from one learning situation to another.

Text Difficulty.

In preparing for test one and two the nature of the reading task was the most commonly cited reason for utilizing a particular approach. This relationship was confirmed by the data gathered during the feedback and interview sessions. The following are typical explanations given by students for their

approach variability across the first two situations.

> "The article included more theories and factual material than the previous reading - I tended to learn a little about a lot rather than a lot about a few points."
>
> "Psychological Contracts was a little easier to understand thus [I] could grasp [what] was being put forward. In this article what you couldn't understand you either miss out or just memorise it, even though you didn't have a clue as [to] what was being said."
>
> "I found the second article hard, harder than the first. It was easier to just learn points rather than try to understand it."

These comments reflect a tendency by students to attribute approach change to a change in the level of text difficulty rather than the subject of the article. Increased text difficulty from situation one to two showed a stronger association with approach change than with approach stability, especially when the reported motive and level of motivation remained unchanged. Of those reporting text two as more difficult than text one 36 (N=55) reported employing a different approach.

The change in approach usually involved a shift from an overview (i.e approach type 2 or 5) or holistic approach (i.e., approach type 3 or 6) to a detail approach (i.e., approach type 1 or 4). Only two (N=36) of these approach changes involved a move from an elaborated approach (i.e., approach types 4, 5 or 6) to a restricted approach (approach types 1,2 or 3). This suggests that the level of elaboration is relatively stable in the face of varying text difficulty.

Prediction18:
Where text difficulty increases from one situation to another any associated change in approach will most commonly be from an overview or holistic approach to a detail approach.

Prediction 18 was confirmed by the data from the retrospective reports made by the sample (N=23) in situation three although change in text difficulty was

even more closely associated with change in outcome type and the ease with which the outcome was produced than with approach change. Where the reported type of motivation remained constant increased text difficulty was commonly linked to outcome changes from D band to S band. Quoted below are student's explanations of why this happened.

> "The complexity of the article affected my understanding and ability to communicate my understanding .... My problem is in I am able to understand things very clearly in my head - but my ability to communicate those understandings isn't so good"
>
> "Was different as this article was much 'deeper' and harder to come to terms with ..."
>
> "I found the reading hardish so don't think I organised my ideas as a result."

Outcome band shift occurred between test one and two in 23 (N=45) cases where the text was rated as difficult (1-2 rating). Of these 18 (N=23) produced an D band outcome in test one and rated this text as easier than text two where they produced an S band outcome.

Prediction19:
Increased text difficulty will be associated with a shift from D band to S band outcomes.

This prediction was strongly supported by the data from situation three. Of the 15 (N=23) students rating the text as difficult (1-2 rating) 12 produced S band outcomes. Examination of situation one data for these 12 students revealed that where text one had been given a rating suggesting it was easier than text three D band outcomes had been produced in ten (N=12) cases.

Of those who demonstrated S band stability across tests one and two 17 (N=19) consistently produced S1 outcomes or shifted from an S2 to an S1 outcome. A similar pattern was found among those exhibiting D band stability.

Prediction 20:

When text difficulty increases relative to the previous learning situation if band stability is exhibited then a drop in the level of outcome elaboration will result. (i.e., shift from S2 to S1 or D2 to D1).

This prediction was accurate for the sample in seven (N=10) instances.

Level of Motivation.

The effects on approach and outcome of high text difficulty appeared to be offset by high levels of motivation. For some students difficulty motivated increased activity which enabled them to maintain their level of outcome. This increased activity was manifested in two ways; students either made quantitative adjustments to their approach, engaging in more of the same activities they had reported in the previous learning situations or they made qualitative adjustments to their approach. The most common qualitative adjustment involved the inclusion of activities that required engagement. (i.e., the active and critical consideration of the meaning and implications of the contents of the text.)

The motivational level, as opposed to the type of motivation, exhibited a partial positive relationship with the level of engagement. Those students who reported the most engagement in their overall strategy also reported high motivation. However, those reporting minimal engagement did not always report low levels of motivation. Some reported high activity of a non-engaged type.

Prediction 21:

Students reporting high engagement will report high motivation.

This was confirmed by the data from the third class. A student in this class who reported a significantly elevated level of engagement compared to the previous two situations noted:

"I put in more of my own opinion, instead of just memory recall, as in the last test ..."

This student's level of motivation was significantly higher than it had been in the previous situations.

Prediction 22:
Motivational level changes of two or more degrees (on rating scale) will be associated with outcome band changes.

Two students who had exhibited outcome band stability across tests one and two changed bands in test three. The first changed from S to a D band outcome. The retrospective report revealed that although the motivation had not changed in type it had increased in level and was accompanied by a change in test response style.

This student's reported motive, strategy and outcome presented a high degree of unity, each predicting the other two. This had not been the case in the two earlier situations where the outcome was not predicted by either strategy or motive.

The other band change in situation three involved a change from a D to an S band outcome. The student concerned rated her motivation for this test much lower than for the previous two even though her motive and strategy remained unchanged. Prediction 22 predicted both these findings.

Time Available.
The time spent by students preparing for each test ranged from half an hour to six hours. As one would expect this was closely related to the type of strategy employed. Those students who employed an elaborated strategy on average reported spending more time studying than those who reported a restricted strategy. Some however reported that the time available was a constraint, restricting their approach options. Comments made included:

> "But unfortunately although I had good intentions to do more study I simply lacked the time."
>
> "If I had had time I would have rewritten my notes and skim read the article again."
>
> "With the limited amount of time I left myself to study to learn best was by writing down key concepts (E.g., most of the text.)"
>
> "Lack of time - took the quick option - read it. It is for me not the best way."

Several of the explanations given for the amount of time invested in study revealed a link between time and level of motivation. The comment below is typical of these explanations.

> "I didn't spend much time learning it cause [sic] found it quite boring and repetitive and it wasn't worth much so I wasn't terribly worried."

Time exhibited a positive relationship with activity in situations one and two. The most active learners invested proportionately more time in their studies than those reporting relatively passive approaches.

Prediction 23:
Time will be positively associated with active learning approaches.

This prediction was accurate in 21 (N=23) cases in situation three. Of more interest, however, was the relationship between time and outcome type. The S1 outcomes were on average consistently produced with less study than the other three outcome types.

Prediction 24:
S1 outcomes will be, on average, produced by students who invest less time in their study for test three than the other three outcome types.

Table 17 gives the average time spent to produce each type of outcome for each test. Prediction 24 predicted the relationship between time spent to

produce an S1 outcome and the data for the other three outcome types in the test three data.

Table 17

Average Time Spent Studying to Produce Each Outcome Type (Hours /Minutes).

	Outcomes.			
	S1	**S2**	**D1**	**D2**
Test 1	1:48	2:18	2:12	2:12
Test 2	2:36	2:48	3:06	2:48
Test 3	2:06	2:48	2:36	3:00

The difference between the average time spent to produce an S1 outcome and a D2 outcome was 24 minutes in situation one and 12 minutes in situation two. Each test question could gain a maximum of five marks in each test. The difference in average marks attained by those producing S1 and D2 was 2.2 for test one and 1.5 for test two. These differences are approximately equivalent to the respective S1 scores. This means that on average those who produced D2 outcomes in tests one and two invested only 24 and 12 minutes respectively to gain twice the marks as those producing S1 outcomes. Twenty four and 12 minutes represent 18% and 7% of the average time invested by those producing D2 outcomes in tests one and two repectively.

Prediction 25:

Those producing D2 outcomes will invest no more than 20% more time than those producing S1 outcomes but score will gain twice as many marks as those producing S1 outcomes.

This prediction did not accurately predict the average study time and marks difference between S1 and D2 groups in the data from situation three. Here those producing D2 outcomes spent on average 40% more time studying than those producing S1 outcomes and gained on average less than twice the

average marks of the S1 group (i.e.,172%).

Conception of Learning.

Students foccussed upon different aspects of learning when describing their conceptions of learning. Some addressed the process involved in learning as well as the intention and focus (i.e., knowledge, attitudes and skills). Others only addressed one or two of these areas. In cases where the description included consideration of the process of learning students revealed that they saw the process involved in learning in one or more of the following ways:

1. Learning is an accumulative process.
2. Learning is a reproductive process.
3. Learning is a process of constructing understanding.

Examples where only one of these conceptions of the process of learning was given are given below:

1. "Increasing knowledge in areas of interest ..."

2. "Learning to me is memorising key concepts & principles necessary to answer questions in exams & tests ..."

3. "Learning is a mental, physical process aimed at broadening an organism's perception of reality and elucidating understanding of the question why?"

Students' conceptions of learning showed a very strong association with their stated motives in the first situation. This association was less evident in situation two and so a prediction was not made about the relationship between these two dimensions of learning in situation three.

For some students in situations two and three their conceptions of learning were more closely linked to their reported learning strategies than to their stated motives suggesting that the motives given may have been influenced

by the conception of learning implied by the questions in the previous test or tests or by a desire to present a particular image to the researcher. Certainly the quest for understanding was given by a number of students who had previously described conceptions of learning that were not consistent with this type of qualitative motive.

Learning Self-concept.

The ways in which students perceived themselves as learners were closely linked to the quality of the outcomes produced in tests one and two. At least half of those producing S1 outcomes in each test described themselves in negative terms. Speed, recall ability and effort were the criteria most commonly used to make these assessments. The same criteria also featured in many of these students' conceptions of learning. The overall impression was that students producing S1 outcomes measured themselves against a quantitative conception of learning and concluded that they did not measure up to the ideal.

Students producing S2 outcomes generally described themselves in positive terms, using similar criteria for assessing themselves as were used by students who produced S1 outcomes. They also tended to hold a similar conception of learning to that reported by the S1 group.

Those producing D1 and D2 outcomes in tests one and two could not be distinguished from each other on the basis of their learning self-images. Both groups were much more likely to describe themselves in positive or neutral terms compared to those who produced an S1 outcome on at least one occasion in tests one and two. Those who consistently produced D band outcomes were also more likely to describe learning in terms of the ability to construct meaning and apply learning in subsequent situations. These descriptions were more qualitative than those given by students producing at least one S band outcome in the two situations.

Reading Self-concept.

Of the ninety students in the super-sample 31 (34%) described their reading ability in partially or totally negative terms. The following comments are typical of the range of negative assessments of reading ability given by this group.

> "Slow reader, I have trouble with large words - saying them and understanding what they mean."
>
> "I don't read very often and when I do I read quite slowly. If I'm not interested in what I'm reading I don't take in much information so have to read an article a few times to get the gist of it."
>
> "A slow reader, have to read it many times to understand it."
>
> "Pretty hopeless - very slow. Frequently can read a page and then not be able to recall anything that I've read."
>
> "Bad, real bad, slow, not understanding."

Sixty one percent (N=31) of the students who perceived their reading ability as negative or negative in some respect also saw gave negative descriptions of themselves as learners. It was members of this group who exhibited a tendency to become more passive when faced with a challenging reading such as text two.

Written Skills

Data gathered from the questionnaires, interviews and feedback sessions suggested that students considered that, especially when pressured by shortage of time, it was written skills rather than understanding or recall that was the primary factor which limited the quality of the outcomes they produced. The following comments are typical of those that made reference to their written skills in the questionnaires from situation one and two.

> "I thought I showed my understanding of the article, but there was no structure in my answer. It was just blurted out."

"I can't be expected to write a good answer in the time we were allowed. I just wrote down things as I thought of them."

"Usually know the info., but have difficulty getting it all down in such a short time - pressure."

"Didn't really explain self logically, trying to cover too much in short time."

Test Expectation.

Some students indicated that test expectations had been a key factor in the selection of learning approach. The following comments were made in the retrospective reports following test one and two.

"I thought the test would be multi-guess, therefore I looked at detail and just before [sic] exam filled my brain with detailed facts which blocked my ability to give a broad overview of the article."

"Presumed there would be a general question ... and tried to think of an answer for this."

"Didn't know what to expect so got nervous."

"After the first test [sic] had a general idea of what was expected in the tests so [sic] didn't try to learn any dates or facts, just get a general understanding and try to relate to the article."

"I was expecting short answer questions on topics, I didn't expect the qustions to be so general."

By test three 11 (N=23) students indicated they were using the similarities they had detected between tests one and two as a basis for their test expectations. The following comments indicate how the previous situations influenced the students' approaches:

"Put more thought into what the author was trying to tell the reader rather than what the author actually wrote."

"Presumed there would be a general question such as - what did you learn or what was the article about - and tried to think of answer for this."

"Knew what sorts of questions to prepare for."

"I knew the type of question you would likely ask [sic] I was aware of the time constraint."

"As I knew what to expect [sic] prepared accordingly (I hope)."

Surprisingly only four (N=11) of those indicating the previous tests had influenced their test expectations reported noticably different learning approaches.

Attitude to Tests.

Some students revealed that their attitude to tests generally or the type or percentage of the total course assessment employed by lecturers in this study was a factor in either their approach and/or outcome. Typical comments were:

"I do not like being tested under these conditions."

"The article was very interesting but I really couldn't be bothered with tests/ hate them ...."

"I didn't spend much time learning it cause [sic] found it quite boring and repetitive and it wasn't worth much so I wasn't terribly worried."

Gender.

Analysis of the outcomes produced in tests one and two by each gender revealed that females consistently produced more D2 outcomes than the male students. In test one 6 (N=10) of the D2 outcomes were produced by females while in test two females produced all (N=13) D2 outcomes. In contrast male students made up a larger proportion of those producing S1 outcomes in both tests. Clear gender patterns were not produced for S2 or D1 outcomes however. Table 18 gives the outcome distributions for each gender in the three classes.

Table 18

Distribution of Outcomes for Each Gender.

	Test 1		Test 2	
	Female	Male	Female	Male
S1	23	40	21	43
S2	19	17	33	21
D1	56	33	19	36
D2	13	10	27	0
Total %	100	100	100	100

Prediction26:

Males are will produce more S1 outcomes while females will produce more D2 outcomes.

Data from situation three did not support this prediction. Only 11% of the males as opposed to 21% of the females produced S1 outcomes and two (N=4) of the D2 outcomes were produced by males.

The patterns identified in the analysis of data on the learning approaches used to produce the various outcomes did not exhibit any clear gender specific trends except that on average for all tests the females reported spending more time studying.

Study Skills Advice or Tuition.

Few students reported being influenced by study skills advice or tuition but for a small number this was a factor in their approach selection. Two students had adapted their approach to accommodate advice they had received regarding their preferred sensory modality. For others such factors were not consciously taken into account when studying. The following comments were typical of those claiming they had not been influenced by previous study

skills advice or tuition.

> "I prepared for all three tests in exactly the same way. This is because I usually study for all subjects in the same way. I believe my study is effective for me and explaining the methods I use etc does not influence what I'll do."
>
> "Usually use same method for studying each time, no use changing methods every time you have a test etc."
>
> "I'll always learn for a reading test in this way. Nothing has ever influenced the way I learn, because I've got my own learning habits and find it hard to adapt to new methods."
>
> "I did not alter my learning style or approach because this is the way I find most comfortable and efficient."
>
> "I have my own way of learning and find I learn best that way."

Other Factors.

Factors such as socio-economic status and years of previous tertiary study were examined for possible links with either approach and/or outcome but no clear patterns emerged.

The only other factor which was identified as influencing students was the nature of the research programme. Five students (N=203 questionnaires) acknowledged that the research activities had alerted them to aspects of their learning behaviour they had previously not been aware of. The effect in each case was the modification of their study activities to focus on the text readings in overview as well as with regard to the detail.

Results from the Approaches to Studying Inventory.

The Approaches to Studying Inventory (Ramsden, 1983) is composed of the 64 subscales and four composite scales. (See Appendix E for detailed descriptions of the subscales). The four composite scales are:

1. Meaning Orientation. This scale includes deep approach, use of evidence, relating ideas and intrinsic motivation. High scores indicate that the learner endeavours to understand what they are studying.

2. Reproducing Orientation. This scale includes surface approach, syllabus-boundness, fear of failure and improvidence[3]. High scores indicate that the learner endeavours to replicate what they are studying.
3. Strategic Orientation. This scale includes extrinsic motivation, strategic approach and achievement motivation. High scores indicate that the learner is primarily concerned with gaining qualifications to assist them in gaining employment and that the learning task is seen to be part of a game that they must win to achieve this goal.
4. Non-academic Orientation. This scale includes disorganised study methods, negative attitudes and globetrotting[4]. High scores indicate that the student is not academically inclined and experiences learning difficulties that result in poor academic achievement.

The scores for each member of the sample, except one who was unable to complete the inventory, are given in Appendix F. When these were aggregated and the sample mean and range for each scale compared with those from the overall discipline means and ranges that have been calculated for all studies to date (Ramsden, ibid) the sample showed the greatest similarity to the profile given for economics students.

When the individual ASI learning profiles were compared with those which had emerged from the previous phases of this study the profile pairs in 11 (N=22) cases showed some similarities. Within these 11 cases, four students who had reported elaborated detail approaches and had produced S band outcomes scored below the sample mean on Meaning Orientation and above the mean on Reproducing Orientation. No clear pattern emerged when the other two composite scales were considered.

[3] Improvidence was defined in Chapter Two, p. 16

[4] Globetrotting was defined in Chapter Two, p. 16.

In contrast, within the 11 cases, the seven who had consistently employed elaborated overview or elaborated holistic approaches and had produced D band outcomes scored above the sample mean on Meaning Orientation and below the mean on reproducing orientation except for the one student who had consistently produced D2 outcomes. She scored high on both Meaning Orientation and Reproducing Orientation.

Four of the six students who exhibited approach and outcome stability were among the 11 discussed above. For the two who were not in this group the ASI profiles were in marked contrast to those generated by the rest of the study. One who had consistently reported learning behaviours suggesting a detail focus and a highly repoductive approach scored very low on Reproducing Orientation and very high on Meaning Orientation. The reverse would have been necessary for the two profiles to be consistent with each other.

Because the remainder of the sample exhibited some degree of outcome and/or approach variability and given that the ASI assumes approach stability comparison between the two profiles of this group was not strictly valid. Not surprisingly, when this comparison was undertaken, more contradictions than points of consistency emerged.

Summary.

The results reported in this chapter reveal both intra- and inter-task approach variability across the three learning situations studied. Outcome variability, which did not always exhibit a close relationship with learning approach, was also revealed. The results confirm that a number of factors including highly situationally specific factors influence the way in which the learning tasks were approached. These findings and the poor level of consistency between the ASI profiles and those produced by the grounded approach used in the rest of the study challenge the usefulness of the ASI as a tool for generating data on individual student learning behaviour.

The findings reported in this chapter are discussed in Chapter Five in relation to the literature reviewed in Chapter Two and form the basis for generating a nascent theory of learner behaviour when learning from text and an "effective learner" profile.

Chapter Five

DISCUSSION

Introduction

This chapter discusses the results presented in Chapter Four in relation to the literature reviewed in Chapter Two. This discussion provides the framework for the development of a nascent theory of learner behaviour when learning from text and a profile of the effective tertiary learner. Where appropriate the implications for tertiary educators are also discussed. The chapter concludes with a discussion of the limitations of this study and possible directions for future study.

The Characteristics of the Learning Approaches.

A multi-dimensional, six category learning approach classification scheme emerged from the comparative analysis of the data collected on students' motives, study activities, learning strategies and foci when studying from text. This is in contrast to the two and three category classification schemes that have emerged from the phenomenographic and psychometric studies reviewed in Chapter Two and reflects the extensive variability detected in the approaches reported by students participating in this study. Unlike the deep-surface classification scheme (Marton & Saljo, 1976a), the scheme that emerged from this study is not readily simplified into dichotomized dimensions which would enable the learning approaches to be perceived as being arranged along a continuum. Instead a multi-dimensional matrix appears to be a more appropriate means for conceptualization the relationship between the individual approaches.

When considered alongside the phenomenographic studies, with their reliance on indepth interviews as their primary technique for gathering data, it is a little surprising that a more differentiated classification system should emerge from a study which relied upon questionnaires as its primary means of data collection. Regardless of the source, however, this differentiation provided greater scope for identifying the site of influence of the contextual

and personological factors investigated than would have been afforded by a two or three category scheme.

Motive.

The qualitative, quantitative and composite motives identified differed from the classification system used in the reviewed studies. In the phenomenographic studies motives were described as intrinsic or extrinsic[5] (Fransson, 1977; Marton & Saljo, 1984) while Biggs (1984) and the research group who developed the Approaches to Studying Inventory described a third type of motive which they called achievement motivation[6]. The structure of the learning situation in this study, with its focus on test performance, appears to have encouraged exclusively extrinsic motives as the three motives that were identified in this study were all forms of extrinsic motivation.

Study Activities.

The study activities reported by students fulfilled one or more of the following functions: comprehension, focussing, reduction and consolidation. Further analysis of the activities in each functional group revealed that they contained some activities that were either planning, monitoring or evaluation activities. Such activities comprise part of the metacognitive[7] component of a learner's learning approach but as not all students reported activities that could be classified as metacognitive the codes in the classification system were not differentiated to this level.

[5]Extrinsic motives are characterized by the desire to fulfil the demands of others while intrinsic motives were characterized by self imposed demands (Marton & Saljo,1984).

[6]Achievement motivation is characterized by competitiveness driven by a desire for success (Ramsden, 1983).

[7]Metacognition is defined by Flavell (1978) as "knowledge that takes as its object or regulates any aspect of cognitive endeavour." Baker and Brown (1984) distinguish between two different types of metacognitive activities: knowedge about cognitive activities and regulation of cognitive activities. The metacognitive activities uncovered in this study were examples of the

The failure to report metacognitive activities occurred despite requests asking students to be as specific as possible when reporting their learning behaviour. This is interesting. It raises the question of whether these students were consciously aware of the manner in which they regulated their learning behaviour or whether the superficiality of their responses reflected a lack of concern for the quality of the information they supplied. If lack of conscious awareness was the explanation this is a matter for concern as it is widely acknowledged that learning efficacy is associated with the ability to be aware, understand and actively control learning processes (Biggs, 1985, 1987).

Learning Strategies.

As noted in Chapter Four, the analysis of the study activities that combined to form the learning strategies revealed two types of strategy. The most elaborate strategies, termed elaborated, were those with activities from all four functional groups. In comparison, restricted strategies were less elaborate and did not include separate reduction and/or consolidation activities. When this descriptive framework, which focusses on the structure of the strategies, is compared with that which emerged from the phenomenographic studies a major difference is revealed. In the phenomenographic studies strategies were described in terms of the effect of the strategies (i.e. reproduction or transformation of text content). In this respect the framework which emerged from this study is more like those used to describe the strategic components of learning approach in the learning inventories.

When the findings on strategy and outcome were compared, those students reporting restricted strategies characterized by a reliance upon comprehension activities to consolidate learning were less likely to demonstrate a comprehensive understanding of what they had read than those who did report separate consolidation activities. This is not a surprising finding given that reading for meaning has different skill demands to reading for remembering (Baker & Brown,1984).

This finding has implications for study skills programmes. It implies that

students need to know more than just how to complete a certain study activity. They also need to know what can be achieved by using it and how to complete a task demand analysis to establish that the use of that particular activity is warranted. Without such knowledge some students are likely to use activities to achieve purposes for which they are not suited as was the case when students tried to use comprehension activities to understand and consolidate their learning simultaneously.

Not all student approaches revealed a clear relationship between motive and strategy as is suggested by the congruency hypothesis (Biggs, 1978, 1981). Instances were found where students stated qualitative motives but revealed strategies that prevented the realization of these motives. These cases suggested that an intervening variable or variables were preventing the motive from directly defining the learning strategy employed. Some students provided evidence suggesting they were aware of this inconsistency, frequently reporting having taken steps to eliminate it. This suggested that strategy selection was not simply occurring within the context of motivational state as suggested by Biggs (1989). This study provided evidence which suggested that the students engaged in a process of ongoing task demand assessment and that this was a major consideration in the strategy selection process. Such findings have implications for the development of a theory of learning from text as they suggest that a unidirectional, deterministic representation of the relationship between motive and strategy is not appropriate.

Style.

Entwistle et al. (1979) suggest that it is important to distinguish strategy from style. They define strategy as the chosen way of approaching a task and style as the preferred way of tackling tasks generally. In some cases the data from this study suggested this distinction was appropriate as stylistic consistencies for some students were noted which persisted even when strategies varied. These consistencies revealed themselves in the manner in which students undertook tasks rather than the tasks they undertook.

The literature suggests that style is multi-dimensional. A wide range of cognitive and learning styles[8] have been described which have been linked to learning behaviour. For example, Pask (quoted in Entwistle et al., 1979) describes two different styles, which he terms serialist and holistic[9] and which he believes lie behind operational and comprehension learning respectively. In this study these styles were suggested by the overview and holistic approaches but, given the hypothesized pervasiveness of style, the serialist-holistic construct could not be considered a dimension of these approaches because many individuals reporting such approaches did not consistently do so.

Evidence was found suggesting that other styles were pervasive, however. For example, some students consistently demonstrated that they were able to extract an overview from an article and develop their own structure for learning. This ability is consistent with the style referred to as field independence (Witkin & Goodenough,1982). Evidence was also found suggesting the style dimensions termed reflectivity (Kagan, 1966) was a stable feature of students learning behaviour

[8]See Kirby (1979) for an extensive list. Cognitive style and learning style have come to be used interchangeably or subsumed under the more general term of style. Such approaches disguise the separate origins of the two terms. Cognitive style is a construct originating from studies in mainstream cognitive and psychometric psychology which have sought to identify stable information processing or personality traits. In contrast learning style refers to stylistic differences individuals' behaviour in learning situations. Studies taking this perspective have tended to have emanated from educational psychology.

[9]An holistic style is characterized by a broad focus and a concern for the general outline of knowledge and the interconnections between ideas. It is expressed in comprehension learning by the consideration and integration of material from a variety of sources outside the immediate task's content and a broad focus on main ideas and their interconnections without significant attention to detail. In contrast the serialist style is characterized by a narrow focus, a systematic approach and a reluctance to form generalizations. This style is expressed in operational learning by logical, step-by-step consideration of the detail contained within material being studied with very little attempt to relate this to the wider context or personal experience.

This study did not produce the level of detailed empirical evidence required to establish the influence of learning style on the various dimensions of learning approach but from the limited data that was obtained it appears that stylistic factors may vary in the intensity of their effect across several learning situations and between individuals. It is only possible to speculate about the possible cases of this variation but, given that text difficulty was associated with variations in a wide range of dimensions of learning approach, it is possible it also contributed to variability in the intensity of style influence.

Focus.

Three learning foci were identified: detail, overview and holistic. Students reporting a primary detail focus were concerned with collecting and committing to memory phrases, examples, details from charts and points the author made which were considered important. Just how importance was determined was not clear. Many students made decisions about importance while they read an article for the first time suggesting that a statement's relationship to the total argument contained in an article was not used as a criterion for establishing importance.

The detail focus closely corresponded to the focus on 'the sign' which was a feature of the surface approach described by Marton and Saljo (1976a), the reproducing orientation described by Ramsden (1983) and utilising dimension described by Biggs (1979).

In contrast, the overview focus was not equivalent to any of the foci associated with approaches described in the literature. It represented an attempt to process the information being read in a superficial manner but with regard to the central argument or theme. It was therefore associated with a qualitative motive but was unlikely to be associated with extensive consolidation activities.

The holistic focus closely corresponded to the focus on 'what is signified' which characterizing the deep approach described by Marton and Saljo (ibid),

the meaning orientation described by Ramsden (ibid) and the internalising dimension described by Biggs (ibid). Students reporting this type of study focus expressed qualitative motives and were concerned with addressing the article being read in such a way as to understand the central theme and the supporting detail. In some ways this type of focus represented a combination of the previous two. It was often associated with less extensive reduction activities than the previous two, however. Even so, the findings of this study and several studies reviewed in chapter Two suggest that students using approaches characterized by this type of focus achieved better factual recall than those using approaches characterized by a focus on detail (e.g., Fransson,1977; Svensson,1977; Van Rossum & Schenk, 1984).

Sometimes the focus revealed by the focussing activities was not consistent with the stated motive. The most common motive-focus combination in these cases was a qualitative motive and a detail focus. Usually this was accompanied by a low level of motivation suggesting that a motivation level threshold must be overcome if a qualitative motive is to result in a consistent motive-focus combination. Marton and Saljo (1984) and Biggs (1978, 1981) would argue that inconsistent motive-strategy combinations do not exist. Marton and Saljo note:

> "What we found was that the students who did not get 'the point' failed to do so simply because they were not looking for it." Marton and Saljo (ibid). p 39.

This suggests that a direct relationship exists between motive and focus. It does not accommodate the possibility that students may not have the skills to realize their motive. In this study the identification of cases where a mismatch was found suggested that more study is required to establish whether the relationship between motive and strategy is as direct as the literature suggests.

Other Learning Dimensions.

A number of additional dimensions of students' learning were identified in

the course of the study but were not included within the classification framework because they impacted selectively upon other dimensions. For example; activity level was found to vary across a student's learning strategy. Active reduction activities could be followed by relatively passive consolidation activities. This lack of uniformity prevented entire approaches being classified as either active or passive.

The importance of activity in learning should not be overlooked, however. Passivity in learning has been hypothesized to contribute directly to deficient academic performances (Miller, 1987). Evidence was found within learning strategies to support this hypothesis. Students who employed active reduction and/or consolidation activities were more likely to produce S2 or D2 outcomes than those who were were relatively more passive. Figure 3 in Chapter Four reveals that in all three tests these outcomes were scored more highly by lecturers than S1 outcomes and at a similar level to D1 answers.

This study found that students had differing conceptions of the nature of learning. As noted in Chapter Four, the complexity of these conceptions varied according to whether, process, intention and focus were addressed. When the descriptions of process were analysed accumulative, reproductive and constructive notions were identified. These show remarkably similarities to categories in the classification scheme that emerged from the study conducted by Van Rossum and Schenk (1984)[10]. However, the overall conceptions of learning described in this study could not be classified into one of the categories in Van Rossum and Schenk's classification scheme because some conceptions reported consisted of a combination of two or of the categories in this scheme. The categories in Van Rossum and Schenk's classification scheme also failed to address all three dimensions (i.e., process, intention and focus of learning) which featured in the conceptions of learning reported in this study.

[10]See Chapter Two, p.21.

As noted in Chapter Four, evidence was found suggesting a close link between the conceptions of learning held by students and the criteria they used to describe and/or evaluate their ability as learners. The conception of learning was also associated with the motives given for learning activities, particularly in situation one. Just how these three dimensions of learning are related was not always clear but because students rarely reported motives in situation one that could not be accommodated by their conception of learning it seems reasonable to hypothesize that their conception of learning set the parameters for their learning motives. The finding that some students revised their conception of learning following test one and this was accompanied by a change in stated motive in situation two gives support to this hypothesis.

Evidence was found to suggest that reading self-image was an important factor in determining aspects of the learning approaches reported by students. Students with poor reading self-images tended not to respond constructively when text difficulty rose. Rising text difficulty ratings were often accompanied by a drop in the level of activity reported in the comprehension activities. This suggests these students with low reading-self images, regardless of whether these were based upon empirical evidence of poor reading skills, were unable or unwilling to take strategic action to maintain a level of comprehension when text demand increased. The reason for this appears to be that poor readers react affectively when confronted with comprehension difficulties (Fischer & Mandl,1984). They are more likely than those who perceive their reading skills positively to see comprehension difficulties as confirmation of their poor reading self-image and give up (ibid). In contrast good readers have been found to have a range of available alternative strategies (Hare, 1981; Smith 1967) and the flexibility necesary to adapt to reading tasks (Smith, ibid: Worden & Nakamura, 1982).

Effective reduction requires that the text being reduced is understood therefore the effect of poor understanding can have a 'flow on' through the learning approach. As a substantial amount of reading is required in many

tertiary programmes the importance of reading and reading self-image can not be overlooked. There is little point in providing skills development that addresses reduction or consolidation skills until comprehension skills are adequate.

Evidence was found suggesting that students made decisions about aspects of their learning approaches using cues from tests one and two. Normally, in three separate courses this would be unlikely to occur but the research project on this occasion served as a link between the activities in the three classes. This cue-seeking appears to have contributed to the greater uniformity in approach detected between situations two and three compared to that between situations one and two. This finding is consistent with the findings of a number of other studies[11] which have found that assessment strategies have a major influence on how students approach learning in tertiary programmes. Elton and Laurillard (1979) consider that assessment strategies are actually the most potent factor affecting students' learning approaches.

The influence of assessment strategies was not unexpected considering that the stated motives of students in this study were essentially extrinsic. The implication for educators, of a strong relationship between assessment strategies and learning approach, is that if quality learning outcomes are sought then the assessment strategies need to encourage these. Otherwise students, motivated by a desire to pass, are likely to learn in what ever manner achieves this goal regardless of whether this involves meaningful learning.

Types of Learning Approaches.

A classification scheme containing six distinct learning approaches emerged from this study. When compared to the schemes which have emerged from the studies reviewed in Chapter 2 similarities were evident. All schemes addressed the depth of processing reported by learners and did this by

[11]See Newble and Clarke (1986).

considering motive, focus and strategy. They differ in the forms of each of these affective or cognitive constructs and the assumptions about how these can be described.

The scheme emerging from this study does have one significant difference compared to the other schemes. The level of strategy elaboration was included as one of the defining dimensions. Consideration of learning approaches at this level of differentiation revealed the systematic and deliberate nature of many students' approaches. This was not addressed by the other schemes. Other findings were also made which would not have been possible if the data had not been analysed at the level of strategy elaboration. The lack of time, for example, appeared to encourage a linear arrangement in the comprehension, reduction and consolidation activities in the elaborated approaches as well as the condensation of this pattern to the point where some of the comprehension, focussing reduction and consolidation activites were occurring simultaneously or not at all and the approaches could no longer be described as elaborated

The reduction undertaken to produce a classification system always results in the finer features of the phenomenon being classified becoming subsumed by the more generic. The codes in the classification system that emerged in this study, while differentiating between learning approaches at the level of strategy elaboration, are nevertheless the product of such reduction. It is therefore important to remember that, although this classification scheme enabled vast amounts of data on learning approach to be ordered, it obscures the finding that at the individual level each learning approach was a unique response to a particular learning context.

This finding is significant because it challenges the basic assumption of consistency in learning approach upon which inventories such as the ASI are founded. The lack of consistent patterns between the data from the qualitative analysis and the ASI in this study raises the question of whether the ASI can provide a learning approach profile that has validity at the level

of the individual.

Approach Variation.

This study found that inter-situational approach variability was more common than stability. Within this variability, degrees and types of variability were identified.The approaches used by 11 (N=23) members of the sample varied across the three situations in both the level of elaboration and primary focus, three showed no significant variation in either of these dimensions and nine varied on one dimension and not the other. This confirmed that, for some students, learning approach exhibited elements of both consistency and variability. This finding is consistent with the findings of a number of studies on learning approach (e.g., Laurilland, 1979; Marton & Saljo, 1976a, 1984; Ramsden, 1979, 1984).

Over the three learning situations studied, 20 (N=23) different approach patterns were found. This inter-situational individuality in approach supports the proposition that learning approaches are both individual and context specific. This proposition was also supported by the findings from research conducted by Laurillard (ibid) who concluded that learning approaches were context-dependent and that the classification of students' learning approaches, in this instance into deep and surface approaches, was only appropriate within a given situation.

The conclusion that learning approaches are highly individual was also supported by the finding that those factors that were found to influence learning approaches seemed to do so in quite different ways for different students. It was therefore not surprising that widespread group patterns of inter-situation approach variability did not emerge. This suggests that the search for similarities in students' learning behaviour may be a futile one. Instead it may be more fruitful to focus on learning approach from the point of view of explaining individual differences.

This study also revealed that, while one approach may dominate, intra-

situation approach variability can occur. For example; as a result of the reassessment of task demands during the learning process students sometimes reported a change in focus. For other students strategy change occurred and was followed by a change in focus. Cases such as the latter were considered to be significant because they suggested that for these students their focus and probably their motive were a reflection of their available strategies rather than the reverse. Such a finding has important implications for a theory of learning because it provides further evidence that a linear, deterministic explanation will not embrace all patterns of behaviour. The implication for educators is that they should not assume that all students possess adequate repertoires of study skills to enable them to respond to changing task demands.

Study skills development programmes need to be available so that students who are limited by the availability of appropriate study skills can get assistance. These students need to become skilled in a range of study skills so that they have the potential to vary their learning approaches in a manner which enhances the likelihood of effective learning. Study skills alone are not likely to be sufficient to meet this goal. Students also need to possess the ability to assess task demands and select an appropriate strategy to meet these task demands (Biggs, 1985). Study skills development must therefore address the metacognitive component of learning as well as study skills.

Some students reported substantially altered learning approaches in the second learning situation compared to the first. The content and contextual factors that they reported as influencing their approach appeared to have had some influence on all dimensions of their approach. In contrast, other students did not report making modifications to their approach even though they acknowledged increased task demands in situation two.

Such consistency of approach in the face of changing circumstances raises the question of whether these students had the ability to vary their approach. Their inertia could have been the result of absence of alternative strategies, as

mentioned in the preceding section, or it could suggest the change in text difficulty was not sufficient to overcome a personal strategy change threshold. It is possible that approach variability will only occur when stimuli reach a certain minimum level.

Some students responded to changes in task demands and learning context by varying only aspects of their learning approach. This could be explained in terms of threshold differentials. Some aspects of learning approach may be more easily influenced by changing circumstances than others.

The Characteristics of the Written Outcomes.

Four distinct levels of understanding or outcome typically emerged from the phenomenographic studies reviewed. These outcome spaces were all text specific but were characterized by a hierarchical relationship between the individual outcomes. Outcome spaces of this sort also emerged from the three learning situations in this study. Comparison of these outcome spaces revealed that all three could be characterized in terms of a range of quantitative and qualitative dimensions: the type of focus that was evident, the level of elaboration, the presence of an integrating theme, the presence extent of overview of the text that was given, the level of memorizing and evidence of personal synthesis. Using these dimensions the S1, S2, D1 and D2 categories were described.

This general classification scheme is remarkably similar to that described by Entwistle and Ramsden (1983). The four categories in their scheme each have an equivalent in the classification scheme that emerged from the study reported here. The only significant difference appears to be that the category in Entwistle and Ramsden's scheme corresponding to the S1 classification contains outcomes characterized by irrelevant points and "giving an impression of confusion and misunderstanding." In the classification system emerging from this study outcomes in the S1 category are characterized by superficiality and failure to distinguish between the main theme and subordinate points. Confusion is not necessarily evident.

The outcomes produced in this study also varied in accuracy. Erroneous statements were not confined to the S1 outcomes although this type of outcome was more likely to contain inaccuracies than the other three. The problem of accuracy and the question of the relative value of S2 and D1 outcomes were the primary difficulties faced by lecturers as they marked the tests. These difficulties can be reduced when marks are assigned to the features that distinguish the outcome types from each other. In this way if the priority is for meaning a maximum mark can be assigned for elaborated detail which is proportionately less than that assigned to the features conveying an understanding of meaning.

Outcome Variation.

Considerable outcome variability was detected between situations one and two and for the sample (N=23) across three situations. When the outcome patterns for the sample are studied only three students (N=23) produced qualitatively identical outcomes on all three occasions. Even so, for members of the sample, some form of stability was more common than variability across the three learning situations in which they were studied. This means that, like the learning approaches detected in this study, the learning outcomes exhibited degrees of consistency and variability.

The most common form of stability was focus band stability. The findings relating changes in motivation to focus band change illustrated this finding. Large reported changes in motivational level between situation two and three were associated with focus band changes whereas lesser changes in motivation were associated with changes in the level of outcome elaboration. This suggests that the level of outcome elaboration was less resistant to change than focus. Such an interpretation is consistent with the notion of selective effect discussed earlier in this chapter.

The Relationship of Approach and Outcome.

The literature abounds with studies that assume that a direct causal relationship has been established between approach and outcome. Certainly

such a conclusion has a high level of intuitive appeal and is supported by a large body of research. This study appears to have been justified in not making this assumption as evidence was found which challenged the assumption that particular learning approaches produce certain types of outcomes. General patterns were certainly found which parallel those patterns reported in the literature but enough cases were found which were not consistent with these patterns to throw doubt of their universality.

Several strong pattern emerged from the two phases of analysis of the qualitative analysis. Detail approaches were commonly associated with S band learning outcomes while the holistic and overview approaches showed strong associations with D band outcomes with D2 outcomes, which were the most qualitatively superior outcomes. D2 outcomes were never produced by students reporting restricted detail approaches (i.e., type 1 approach).

Several studies have assumed a direct relationship between approach and outcome and have attempted to induce deep processing by manipulating the approach students use (Martin & Ramsden, 1987). The failure to achieve this goal has provided evidence to support the hypothesis that factors associated with the learner or the learning situation mediate between approach and outcome .

A Nascent Theory of Learning.

The studies reviewed in Chapter Two were primarily descriptive in their approach to learning approach. When the patterns and relationships identified in this study are considered together a picture of learning behaviour emerges that is more than just descriptive. Underlying mechanisms are suggested which appear to explain the approach variability that has been identified. These mechanisms are outlined in the following section.

A number of factors emerge which either directly or indirectly influence the approaches that students employ. These were classified as:

1. Personological Factors.

   These are factors such as learning self-image, reading self-image, test expectations, attitude to tests, gender, concept of learning and level of motivation.

2. Situational Factors.

   These factors include the nature and difficulty of the text, the test conditions, available time, previous test situations and other course demands.

When the findings on these factors are considered in relation to the variations in approach and outcome that were identified in this study, two differences in the mode of effect can be identified. Some factors appear to act as 'triggers', prompting changes in aspects of the learning approach, while others function as 'screens', determining the nature and extent of the behaviour changes stimulated by the triggers. The situational factors all appear to act as triggers while the personological factors serve as screens. The variability of response exhibited by different students to similarly perceived triggers suggests that the screens or the manner in which they operate are selective and specific to a particular individual.

The notion of 'threshold', introduced earlier in this chapter, is appropriate here. Each of the personological factors seems to effect learning behaviour only when a particular trigger within the learning situation attains a minimum level. These thresholds appear to be unique to each individual and could explain the unique response patterns uncovered by this study.

A student faced with a moderately difficult task may not modify their learning approach because they assess the level of difficuty as not challenging their capabilities. Should the level of difficulty rise a threshold may be reached which results in the student increasing the amount of time they invest. As the difficulty mounts the challenge posed by the task is compared with the students self-image as a learner and if that image suggests that they can not cope with tasks of that level of difficulty then motivation may drop

and a reduction in activity may occur.

In this example the trigger is task difficulty. It prompts different responses at different levels. This is explained by the different 'thresholds of effect' of *time increase* and *motivation reduction.Time increase*'s threshold of effect is lower than *motivation reduction* . Learning self image acted as the screen on this occasion, directing the effect of high difficulty to motivation reduction. This simple example shows how triggers, screens and thresholds might account for the consistency and/or variability in learning approach exhibited by an individual learner. It does not take into account the variety of triggers and screens that could potentially be interacting in a single learning event or the roles that behaviour and outcome monitoring have in controlling learning behaviour.

The metaphors of trigger, screen and threshold, which are the central features of this theory, do not just provide an explanatory framework for explaining the relationship between task and approach. They can be used to explain the manner in which situational and personological factors modify the relationship between approach and outcome. The difference in the case of this pathway is that the situational factors do not act as triggers but as screens in a similar fashion to personological factors.

This theory is founded upon the assumption that task demands and other situational factors have a selective effect upon a student's learning approach. By using the notions of trigger, screen and threshold strong links with behaviourism are suggested. It does not reflect a simple stimulus-response theory of learning behaviour, however. The findings from which this theory has emerged suggest the learners are aware of the relationships between the various dimensions of their learning approach and can consciously reflect on and modify these.

The triggers, by virtue of being situational factors, are readily accessed by educators desiring to bring about changes in students' learning behaviour yet

it is the screens that determine what changes occur. This implies that it is students and not educators who are in the best position to bring about changes in learning behaviour. This has major implications for study skill programmes as it suggests that skill development should be accompanied by the consideration of the screens that mediate between triggers and the learning approach. In other words, the implication is that skill development should be coupled with personal development activities that address factors such as learning self image and motivation.

A Profile of an Effective Learner When Learning from text.

From the findings of this study and the studies reviewed in Chapter Two a profile of the effective learner when learning from text emerges. This profile has seven dimensions:

1. Positive self awareness.
2. Constructive view of learning.
3. Qualitative motives.
4. A high level of motivation.
5. Task assessment skills.
6. Process skills and knowledge.
    a. Study skills.
    b. Metacognitive skills
7. Outcome knowledge and skills.

The effective learner has a high sense of self-efficacy as a reader and learner and an awareness of their skills. They see learning as a constructive process involving the integration of new knowledge and skills with previous learning in a way that creates new meaning. They have the knowledge and skills required for assessing the nature of learning task demands and the ability to use these effectively. They possess the knowledge and skills required to apply a range of comprehension, focussing, reduction and consolidation skills to a learning task as well as the necessary metacognitive knowledge and skills to enable them to plan, monitor and assess these skills to achieve their desired learning outcomes.

The effective learner recognizes that the qualitatively superior outcomes associated with learning from text are characterized by the presentation of a complete understanding of the central argument or theme of the text, the recognition of the subordinate status of the examples, illustrations and elaborations and the the integration of critical analysis and personal synthesis in to the discussion.

They are motivated by a desire to achieve such outcomes. Their level of motivation is high and is reflected in their willingness to compensate for contextual and personological factors which work against the achievement of these outcomes. The nature and level of their motivation together with their constructive conception of learning combine to support active learning strategies which are characterized by engagement and reflection.

When faced with learning difficulties that threaten to prevent the achievement of quality learning outcomes the effective learner considers these difficulties to be a challenge rather than evidence of any inadequacy as a learner and seeks to revise their strategy to one that will ensure they achieve quality outcomes. In the same situation a less effective learner would respond by either increasing the amount of time spent on existing activities and/or revising their learning goal to one that can be achieved by the existing strategy. Alternatively, they would have an affective response which would be likely to cause a reduction in activity and/or the elaboration of their learning strategy.

While this profile has emerged from studies on the learning approaches of tertiary students when learning from text the profile contains dimensions that are applicable to learning generally.

Limitations and Directions for Future Research.

One of the strengths of employing qualitative research methods is the facility they provide to preserve the relationships that exist between the various phenomena being studied. The other side of this strength is that a great deal

of data is generated which makes analysis a major undertaking and can necessitate selective analysis. This was necessary in this study. Some factors or lines of analysis could not be explored.

The articles used in this study were selected because they were an integral part of the respective courses and so fulfilled the requirement that all aspects of the learning situations studied be as ecologically valid as possible. They each met predetermined, general structural requirements but a detailed analysis of this structure was not undertaken. This was not required as an investigation of the relationship between specific text variables and the comprehension and reduction activities employed by students was not attempted but such an investigation would add an important dimension to the understanding of how text influences learning approach. At present our knowledge is drawn from studies which have not considered the impact of the various text variables upon learning approaches.

When considering the outcomes produced, comments made by students regarding their written skills suggest that their conceptions of what constitutes a quality written essay-type outcome vary. It is possible that their concept of learning and perceptions of the demands of assessment situations are not the only factors which contribute to the nature of this conception. Further study is required to establish the nature of students' conceptions of appropriate outcomes and the way in which these influence their learning approach. To date, more attention has been given to the influence of approach upon outcome rather than the reverse.

Students' ability to produce particular outcomes is another area that was not studied in depth in this study. Indications were found in the retrospective reports which suggested that some students believed they were limited in their ability to demonstrate their learning by their written skills and the conditions under which they were asked to apply these. This would suggest that written skills were one of the factors that mediated between approach and outcome. Further research will be required to establish the actual nature

of this relationship.

The data on learning approach was collected using forms of retrospective report. This mean that the depth and accuracy of the data was determined by the level and accuracy of the participants recall ability and their ability to observe their own behaviour. Many aspects of learning behaviour are automatic and relatively inaccessible to the learner. This is particularly true of the metacognitive processes that integrate the activities in a learning strategy. Ericsson and Simon (1980) note that some subroutines within both cognitive and metacognitive strategies are particularly difficult to access through self-reporting of learning behaviour.

Garner (1982) demonstrated that the accuracy and amount of detail provided by students asked to report on their learning behaviour is reduced over time. This had implications for this study in terms of the comparability of data collected from students who reported engaging in study activities over a number of days compared to those students who confined all their study activity to the day before the test or the morning of the test itself. The latter group is likely to have provided more accurate data.

The quality of a few of the written reports provided by the students varied in ways that not only suggested some were not particularly concerned with providing detailed and accurate reports but also in terms of the facility demonstrated in providing written reports. This proved to be a limitation of this study as not all students revealing limitations in this area could be picked up in subsequent oral situations. Future studies would be advised to use greater triangulation in the data collection phase of the study to overcome the impact of deficiencies associated with a reliance on a single mode of data collection.

Retrospective reports are also susceptible to the effects of post facto rationalization. The possibility that students described their behaviour in a more sophisticated, systematic or organised manner than was actually the

case can not be ignored.The potential for such inconsistencies in data collection is a limitation of the method of collection used in this study. Even so, the alternative on-line methods of data collection are not without their own limitations. The most significant is that they compromise the ecological validity of the actual learning process being studied by intruding into the process itself.

Garner (1988) argues that the answer to the problem of gaining valid data on learning behaviour is to use multi-method approaches to data collection. The problem with this is that each method has its own particular effect on the learning process being studied and the aggregated effect of these could destroy the integrity of the learning process. This dilemma is one that researchers must continue to address.

The findings of this study, and the large number which have preceeded it, have contributed to our understanding of the learning behaviour that students engage in when learning from text. It is important that these findings are translated into more effective student learning. Information needs to be available to educators on how to maximize the quality of students learning outcomes. Some attempts have been made to induce deep processing but to date these attempts have not been particularly effective. In a number of cases programmes that have been sought to promote behaviour that would give rise to quality learning outcomes have in fact achieved the opposite effect (Martin & Ramsden, 1987). Clearly, further research is needed on how best to translate knowledge on learning approaches into improvements in learning. Recognizing that some students need assistance with the demands of academic tasks such as learning from text is not the same thing as knowing how to provide assistance for them (Hounsell, 1984).

Summary and Conclusion.

This study found evidence of both consistency and variability in the learning approaches of tertiary students. It revealed that situational and personological factors are associated with learning approach in ways which enable a

student's learning approach to be an individual, context specific response to a particular learning situation rather than a uniform approach exhibited in all learning situations. This finding was made amid evidence of consistency in elements of intra-personal learning behaviour in both individual learning situations and across several situations. The fact that patterns of consistency and evidence of the uniqueness of an individual's learning approach were both identified in this study confirms the versatility of the methodology employed.

The descriptions of learning approach and outcome that emerged were remarkably similar to those produced by the studies reviewed. However, the findings that emerged when the nature of approach and outcome variability were explored were not all consistent with the findings from these studies. Some findings were challenged. In particular this study's findings have challenged the appropriateness of viewing the relationships of motive and strategy and approach and outcome as unidirectional and deterministic. Instead they suggest that learning approach is more appropriately described in dynamic terms using the notions of triggers, selective screens and feedback.

The findings have a number of important implications for study skills programmes. In particular they suggest that skill development should be individualized and not divorced from personal development or the development of metacognitive skills.

Overall the study has provided new insights, confirmed some existing understandings on the nature and relationship of tertiary students' learning approaches and outcomes when learning from text and suggested areas for further research. It has also provided considerable insight into the nature and effect of a range of factors which influence students' learning approaches. It is therefore reasonable to conclude that the study achieved its aim of exploring the nature of learning approach and the factors which influence it.

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APPENDIX A

Research Proposal

RESEARCH PROPOSAL

- M. Ed. Thesis.

Colleen Mills.

INTRODUCTION

I wish to explore the nature of tertiary students' approaches to learning from text. In particular I am interested in discovering whether an individual's approach to such a learning task exhibits situational variability and if so which factors in the learning situation contribute to this variability. Secondly, I am interested in examining the learning outcomes achieved with different approaches.

Findings from such a study could greatly benefit both tertiary educators and students. Armed with data on the nature of learning approaches, contributing factors in the choice of approach and the quality of associated learning outcomes both educators and learners will be able to pursue learning from text in a more informed and systematic fashion. Few studies of adult learning behaviour have been undertaken in New Zealand. Such a study therefore has the potential to provide culturally specific data to supplement that generated by overseas studies.

RESEARCH QUESTIONS

1. In what ways do tertiary students' approaches to learning from text vary?
2. Which factors in the learning situation influence the choice of approach? (N.B. this assumes that situational variables do impact on approach and that approach is a matter of choice.)
3. Which approaches produce the most effective learning?

The term "learning approach" is used in the literature do denote the combined motivational and strategic elements of a learner's behaviour (Biggs, 1989). I propose to use the term in the same fashion in this research project.

As I intend to identify variables which influence learning approach in the course of the study these can not be specified at this time. It is fair to say, however, given the definition of "learning approach" that the variables that will emerge will be factors that modify the student's motivation and/or strategy.

RELEVANT RESEARCH AND THEORY

The last fifteen years have witnessed the emergence of a new perspective in the study of learning characterized by the recognition of the value of studying learning from the perspective of the learner. Studies undertaken from this second-

order perspective have been termed phenomenographic - essentially experiential and phenomenal (Marton, 1978, quoted in Marton & Svensson, 1979). Phenomenographic studies are conducted in naturalistic settings and seek to identify students' learning approaches and the contextual variables impacting on these. Data analysis is essentially subjective, seldom involving more than simple cross-tabulation.

In contrast, a psychometric tradition has also emerged involving the development and application of inventories. Both these types of studies claim to provide accurate descriptions of their respective subjects' learning approaches. My literature search to date has failed to locate any studies which have attempted to establish whether the two methodologies are tapping the same aspect of learning. I have also failed to locate any significant studies which have endeavoured to establish whether a learner's learning approach is contextually specific. The majority of studies are constructed around a single activity. It is therefore extremely difficult to generalize the data from these studies or consider studies from the two different traditions together. It is therefore my intention to replicate and elaborate upon the phenomenographic research methodology concurrently with the application of one of the learning approach inventories. Multiple applications of the phenomenographic approach will enable me to establish whether the learner's learning approach varies and the comparison between data gathered from the two approaches will provide an insight into the compatibility of the two types of studies. Only in this way will it be possible to establish the relevance of previous studies to the one currently being proposed.

PROCEDURE

The primary principle underpinning the methodology employed in this study is that the student activities studied should be as authentic as possible. The study will therefore need to be undertaken in courses that require students to learn from text reading. As the learning outcomes achieved through reading text are to be the central focus of this study it would be really helpful if the courses involved in the study either currently include assessed reading tasks or are able to be modified to include such tasks.

To establish the nature of each student's approach to the reading tasks information that can not be obtained from the assessment task will also be needed. Students will therefore

need to complete a short questionnaire that requires that they reflect upon their learning behaviour.

Finally, to enable the data gathered from this approach to be compared with that gained using a learning approaches inventory students will need to complete the Lancaster Approaches to Studying Questionnaire

Students will be engaged in three different types of task:

1. Reading a piece of text and answering questions on this text.
2. Responding to a short questionnaire on their learning behaviour associated with (1.).
3. Completing the ASI.

1. and 2. will occur in each of the three courses. In this way the students' responses and learning outcomes can be studied across subjects.

The lecturers involved will need to identify a text reading task that is or can be made an integral part of the programme of study and assessment in their course. The reading task will need to have associated, assessed questions that can form the basis for determining the depth and complexity of the students' understanding of the text. An extensive set of questions should not be necessary. Similar studies have simply asked:

1. What have you learnt from this article?
2. What was the author trying to achieve?

The answers to such open questions provide adequate scope for students to reveal both the extent and complexity of the learning they achieve

REQUIREMENTS

As this study seeks to explore the way student behaviour varies from one situation to another a group of students with three subjects in common will be required. Each student will be engaged in research related tasks for approximately forty minutes in each subject. An additional fifteen minutes of student time will be required to complete the ASI.

Lecturer involvement will consist of identifying a suitable reading task, assessment questions and marking schedule and marking the students answers. A substantial amount of additional time should not be required especially if the reading task chosen is already an integral part of the programme of work.

BENEFITS

Students are required to do a great deal of reading in the course of their tertiary studies. By identifying the most effective ways in which this task can be undertaken assistance can be given to those students who do not employ effective strategies. This study will therefore provide valuable insights for both students and lecturers. To ensure that these benefits are realized it is the researcher's hope that there will be opportunities available for her to conduct staff and student seminars designed to present the findings of the study and explore ways of using the findings to enhance student learning.

Colleen Mills.
May 1990.

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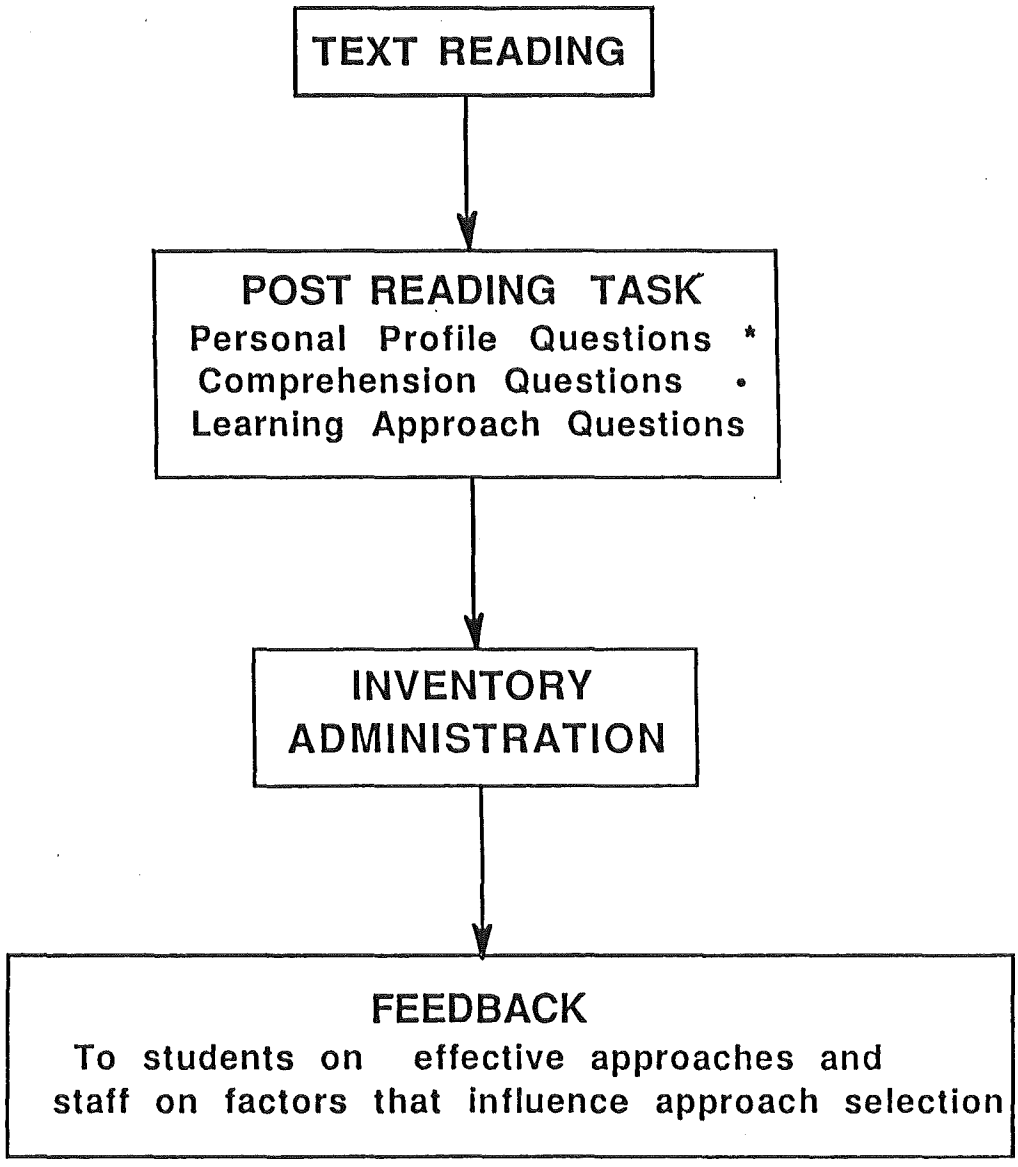
PROPOSED METHODOLOGY

A Study of Student Learning.

Colleen E. Mills.



* Only completed on one occasion

• Lecturers mark

RESEARCH REQUIREMENTS

The following list is to be used as a basis for discussion. Please do not interprete the list as a set of criteria that are fixed but rather as a wish list that represents the ideal.

READING TASK

* Should not be excessively long. 1200 words would be fine.
* Should not merely present a chronicle of facts. There should be an argument with associated illustrations so that memorizing alone will not be sufficient for the students to fully 'master' the reading.
* The reading should be a pivotal part of the required assessment task.
* The reading (text or handout) should be readily available so that students can have the flexibility to select when and where as well as how they study it.
* Students should be fully aware that the reading itself will be examined. HOW this will be undertaken should <u>not</u> be explained.

ASSESSMENT TASK

* The assessment tasks in each of the three courses do not need to be identical in structure but need to require the same responses from the students with regard to the reading.
* The assessment of the reading needs to establish how well the student understood the essence of the reading. It may also include assessment of student understanding of specific concepts. It is not necessary for the assessment to contain any questions that assess simply recall.
* Examples of suitable questions:

  What was the authors intention in writing this article?
  Tell me about article X?
  What can be learnt from article X?
  What is meant by "....."?
  If we accept what the author is saying what are the implications for .....?
  What is the rationale for the author asserting that .....?

* The assessment task can be the preliminary section of a larger task. For example: The reading could be compulsory reading for an essay which requires students to look at the wider implications that arise from a particular view.

DEMANDS ON LECTURERS

* Identifying a suitable reading.
* Designing an assessment task that is able to provide scope for students to demonstrate the depth of their understanding of the reading as a whole while remaining an integral part of the course assessment programme.
* Preparing a marking schedule for the part of the assessment task dealing with the reading. (NB. With lecturer consent it would be useful to explore lecturer expectations.)
* Marking of the assessed task. (NB. An assessment task would be using lecturer time here anyway.)
* Setting aside some class contact time to do the assessment task relating to the reading, the learning approach questions and, for one lecturer, the personal profile questions and the inventory.
* Coordination time - discussions with researcher.

(Approx. 3 hours in total.....)

DEMANDS ON STUDENTS

* No additional out of class time is required.
* In class they will need to complete a set of personal profile questions and an inventory on one occasion and three sets of learning approach questions.

APPENDIX B

Set readings

1.	MGMT 206	Tornow, W.W. (1988). Contract Design. Personnel Administrator, 97-101.
2.	RECN 201	Roberts, K. (1981). Culture, Leisure, Society - The Pluralist Scenario. In: T. Bennett (Ed.), Culture, Ideology and Social Process. Open University Press.
3.	LASC 209	Lyle, J.T. (1986). Design for Human Ecosystems, 126-135. Van Nostrand Publishers.

Contract Redesign

Organizational restructuring has created a new employer-employee relationship that will change traditional approaches to human resource management

By Walter W. Tornow

Illustration: Harold Smelcer

Corporate America's restructuring has had a profound impact on the nature of work and the relationship between the individual nd the organization. A survey by *Industry Week* magazine shows more than 70 percent of 900 respondents believe that loyalty is rapidly disappearing. One respondent commented, "Employee loyalty to the company began to erode when company loyalty to the employee began to erode" (Braham, 1987).

Over the last decade, waves of mergers, acquisitions and downsizing have caused a shift in the expectations and responsibilities of both employer and employee. Adela Oliver observed that changing corporate structures have "cut huge swaths through management ranks, and left the survivors wondering whether loyalty has any part in the relationship between manager and corporation. [The changes have] also left human resource management with a serious dilemma—the redefinition of that loyalty. The blind unquestioning faith in the relationship has been badly shaken. The unwritten contract is gone" (Oliver, 1987).

The outcome is a new employment relationship based on a changing employment contract. A headline in the July 6 issue of *Fortune* magazine explains, "Your new employment contract: Paternalism and job security are out these days. Taking responsibility for your own career is in."

The employment contract

Unfortunately, the literature does not always distinguish among terms such as "employment contract," "employment relationship" or "psychological contract." For the purposes of this article, the changing employment relationship is the outcome of objective events that change the relationship between the individual and the organization. Examples of such events include restructuring, work force demographics, tenure or turnover.

In contrast, the employment contract and psychological contract are assumptions and constructs that explain how major organizational changes redefine the relationship between the individual and the organization. The employment contract focuses on assumptions about the nature of organizations and individuals. The psychological contract refers to unwritten or unspoken expectations and psychological dynamics between employer and employee.

Based on perceptions, the psychological contract is generally implicit and unwritten. It deals with expectations and responsibilities and is relationship-oriented. To be effective, the agreement, however implicit, must be mutually understood and must satisfy each party's needs. It is reciprocal and dynamic. If an imbalance occurs, forces exist to re-establish equilibrium. But it cannot be modified effectively by unilateral action. And violations of the contract can evoke strong feelings.

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Northwestern University's Denise Rousseau provides the most thorough definition of a psychological contract. In her concept paper "The Impact of Psychological and Implied Contracts on Behavior in Organizations," written in 1987, Rousseau explains that a psychological contract is based on the individual's perception that his or her contributions obligate the organization to reciprocate, and vice versa.

She argues that the workings of a psychological contract can be understood best by examining what happens when the contract is violated. Violation subjects the relationship to a form of trauma, undermining the trust and good faith that created the relationship. Such trust develops from a belief that contributions will be reciprocated and that a relationship exists. Rousseau also says that a damaged relationship is not easily restored.

The expectations that form a psychological contract differ from those involved in the employment contract. In psychological contracts, an element of trust and a sense of relationship exists, so that responses to perceived violation go beyond dissatisfaction and perceptions of inequity. These responses include feelings of betrayal and deep psychological distress.

Rousseau's model postulates that the outcome of contract violation is an intense emotional reaction such as outrage, shock, resentment and anger. She concludes that when feelings are uncontrollable and irreversible, anger lingers. The individual's view of the other party and of the relationship changes. It is this outcome of contract violation that we observe and read about in descriptions of employee reactions to mergers, acquisitions or layoffs.

How is the employment contract changing?

The old employment contract was a direct result of factors influencing business. Predictability and stability reigned. Population growth was steady. Long-range strategic planning over five to 10 years became a road map for the future.

The organization considered its work force permanent. The pool of workers were composed largely of full-time employees who wanted standard hours and patterns. Personnel programs and practices were built on this model.

Both the organization and the employee regarded their relationship as long term. They valued loyalty and commitment, which for employees meant staying with the company until retirement. Company paternalism provided economic security, a steady job and the promise of a career, wages and benefits. Often, managers would use the metaphor of the "family" in describing the company's relationship to its employees.

Compensation practices and vacation benefits were rewards for hard work and loyalty based on tenure—longer tenured employees got more pay and holidays.

Personal long-term needs of employees were addressed through company benefit programs, such as pension plans, life insurance and health-care plans. These were defined and paid for by the company.

Opportunities for advancement were good. Economic expansion reinforced advancement of a majority of American workers striving for promotion up the rungs of the corporate ladder.

For the most part, job preparation meant one-time learning. Education and professional training

FIGURE 1

THE CHANGING EMPLOYMENT CONTRACT

FROM...	TO...
1. Stability & Predictability	Change and Uncertainty
2. Growth in Population	Population Downsizing
3. Permanence	Temporariness
4. Permanent Work Force	Flexible Work Force
5. Full-Time Employees	Part-Time Employees
6. Standard Work Patterns	Flexible Work Patterns
7. All-or-None Employment/Retirement	Gradual Retirement
8. Employee Retention	Targeted Turnover
9. "Build" Employees	"Buy" Employees
10. Valuing Loyalty and Tenure	Valuing Performance and Skills
11. Paternalism	Self-Reliance and Responsibility
12. Commitment to Company	Commitment to Self
13. Company-Defined Benefits	Company-Defined Contributions
14. Job Security	Employee Development and Achievement
15. Advancement	Plateauing
16. Linear Career Growth	Multiple Careers
17. One-Time Learning	Life-Long Learning

tended to be job specific and geared toward career preparation. Skill requirements were well known and understood throughout the company.

Today, trends in employment practices and work force demographics show that organizations are moving toward a different situation. Businesses are less predictable and stable. Long-range plans require more frequent updating and significant adjustments. Less like yesterday's "five-year road maps," these plans more often serve as guides to thinking about the future.

In a typical situation, line management will study a competitive analysis and conclude that the company cannot profitably stay in a certain business. Stability and continuity are replaced by reorganizations, downsizing, mergers or acquisitions. Employee population levels and mix undergo dramatic swings that ultimately threatens job security and career paths.

As organizations have adopted just-in-time manufacturing practices, they are moving toward a "just-in-time work force." A larger proportion of the total employee population is a flexible, part-time, temporary or contract work force, which often serves as a strategic buffer against the vagaries of business demands.

Instead of long-term employment relationships and paternalism, the employment relationship is becoming "situational" in the sense that employee requirements are now more dynamic as they are driven by the changing needs of the business. This places a premium on performance contribution and on sustaining an employee base with up-to-date skills that fulfill company needs.

Employee loyalty and commitment are now self-directed. In the new employment relationship, the individual and the organization commit to the ongoing satisfaction of each other's needs. This is reinforced by an empowering management that values employee self-reliance and initiative, particularly in the areas of performance management and career management—which may include the decision to leave the company.

Employee tenure is less valued as compensation practices now favor performance contribution and updated skills geared to company goals over tenure. Important tools in compensation planning will be job enrichment, participation and performance/compensation contracting.

Over the last decade, mergers, aquisitions and downsizing have caused a shift in the expectations and responsibilities of both employer and employee.

Employees are asked to contribute to pension and health-care plans. They are expected to help manage the costs of medical care by choosing company-identified providers and obtaining second opinions. Whereas yesterday's benefits were defined by the company and employer-paid, today they have become contributions to help cap company risk.

Opportunities for advancement are limited due to "structural plateauing" (Bardwick, 1986). Structural and organizational changes such as less growth, fewer jobs and reduced levels of management account for less frequent promotions. Career shifts and multiple careers are becoming more common.

The need for life-long learning is also becoming more apparent. To participate in the job market, workers must avoid skills obsolescence as technical/professional "half-lives" are becoming shorter due to rapid change and the explosion of technical innovation.

Causes for the changing employment contract

Three types of factors influence change in the relationship between organizations and employees: environmental trends, organizational restructuring and demographic variables.

Among the environmental trends are global competition, inexpensive overseas production costs, high costs of raw materials, deregulation and rapid technological growth. In the United States, the transition from a manufacturing to a service economy has changed the tasks of jobs and created new kinds of jobs. With the aim of cutting costs and improving productivity, most large corporations have streamlined, reorganized and downsized. They have instituted work force reductions at all levels, especially middle management. The corporate hierarchy has been rearranged to include fewer levels. And, as many companies move their production overseas to lower costs, the number of jobs for U.S. workers decreases further.

During the last decade, 23,000 mergers and acquisitions were accomplished (Schweiger, 1985). The 10 largest mergers in 1984 directly affected the lives of more than 250,000 employees. Merger activity has increased to the point where few companies can safely assume immunity from some sort of business combination (Robino and De Meuse, 1985).

Equally staggering are the statistics on downsizing: The Gantz-Wiley Research Consulting Group Inc., a Minneapolis-based firm that conducts attitude surveys, discovered that more than one third of the time work force reduction is the solution to business slowdowns. In their 1986 national normative data base of employee opinions, 35 percent of U.S. workers reported layoffs in their companies over the last year due to a downturn of business.

Almost daily, newspaper headlines report the same. Some 60,000 employees at AT&T were affected by reorganization and wholesale layoffs. Eastman Kodak Company let go of more than 10,000 employees over the past few years. Since 1982, DuPont has dropped 35,000 employees.

The effect on organizations and individuals

Organizational restructuring permits companies to reduce costs and be more market-oriented, competitive and flexible. In turn, companies must share more of the responsibility for performance and career management with employees.

New organizational requirements reflect a significant shift in expectations and responsibilities. Under paternalistic modes of management, hard work and loyalty were rewarded with lifetime employment. But today, a company cannot promise to care for its work force "from cradle to grave," nor can employees assume that such paternalism is standard.

At best, companies can state intents; provide information about company mission, goals and strategies; and support employees with information and means of empowerment to contribute to organizational goals and needs or to make the decision to leave the company. But employees themselves are fast becoming responsible for making contributions to the organization. By commiting themselves to working toward maintaining the business, they share the company's risk.

The result is that loyalty and commitment become focused on maintaining the employment relationship, on what the company and the employee must do to keep the relationship going. In turn, the company shares more power and control with the employees to make them more self-reliant, self-directed and responsible for their own career management. To help employees make these changes either within or outside the organization, companies must provide guidance.

Practitioners of human resource management can address the issue of changing organizational structures and employment contracts by modifying compensation systems, benefit programs, training and development, and strategic planning.

Compensation systems that reward tenure such as merit and job evaluation programs can be replaced with systems that focus on skills and contributions tied directly to the changing needs of the organization. Skills-based job evaluations can support job enrichment and a flexible work force. Examples of such systems include pay increases and bonuses that are based on skill levels.

What kinds of healing measures must be available to survivors of layoffs?

Benefit programs that favor long-term retention such as pension and vacation plans can be replaced with programs geared to a flexible and mobile work force. Instead of defining benefit levels and commiting to full funding of those levels, a company can set its annual contribution. This will cap the company's risk.

In training and developing employees, companies can shift the focus to those activities that favor life and career planning, realistic self-assessment and development planning, and continuing education and retraining. These activities reduce skills obsolescence and organizational dependency. They also increase the employee's sense of autonomy and self-direction. As a result, the organization acquires a more up-to-date work force that meets current and future business needs.

In staffing, practitioners should expect that organizations will favor a flexible work force and flexible scheduling such as part-time and flex-time arrangements. They will also favor phased employment and retirement. Other trends include lateral transfers rather than upward advancements and selective population retention or managed turnover.

Finally, human resource planning will have to become an even more integral part of strategic business planning. Translating business goals into needed skills mix, and forecasting retraining and transition needs are examples of what organizations must do to address human resource needs in business planning.

The implications of the changing employment contract are also significant for industrial-organizational psychologists. Organizational models and theories, employee perceptions and expectations, strategies for assisting employees with change, and the impact of organizational culture are some of the issues we must examine.

Many of the assumptions that underlie our models and theories of organizations must be re-evaluated. In general, our models are based on the assumption that organizational structures and needs are stable. They also assume there is continuity in the work force that staff organizations. Finally, our models typically require large sample sizes or repeated small samples to benefit from statistical prediction methodologies. Such implicit assumptions have provided the foundation of our approaches to validation research, job analysis and traditional training and development paradigms. But these assumptions and the models and theories they support must be re-examined in light of change.

There must be a better understanding of employee perceptions and expectations of the changing employment contract. These expectations include both the inputs and the outcomes of behavior in the organization. Relevant inputs include effort and performance, technical updating and attention to organizational politics. But it may be difficult to anticipate the outcomes as they appear to be shifting with the changing employment contract.

Psychologists also must understand better how personality and individual differences affect employees' understanding of changes and their ability to adjust and continue to contribute effectively. Such variables as locus of control, tolerance for ambiguity and self-esteem may play key roles in the future success of employees and organizations.

In addition, individual differences may help direct or moderate strategies. For example, empowerment workshops on life and career planning teach employees to take greater responsibility for themselves so that they will not feel powerless during a merger or downsizing.

Psychologists must also consider organizational culture as a major influence on the psychological contract. Rousseau suggests that organizations with strong cultures, characterized by high consensus or norms and values, are more likely to have firm psychological contracts than organizations with weaker cultures.

Also needed is a greater understanding of the culture's impact on the existence, nature and health of psychological contracts. Consider, for example, what can happen to a psychological contract when a merger takes place between two organizations that have strong but different cultures.

The violation of a psychological contract is also an important issue for study. If, as Rousseau says, the violation produces intense emotional and attitudinal responses, what kind of healing measures must be available to survivors of layoffs? How can these measures help them become as productive, motivated and committed as before? What individual and situational variables influence the duration and eventual plateau of this recovery period? For example, what role do managers and work groups play in that process of recovery and healing?

And finally, we must realize that the managers and executives responsible for implementing the healing activities are also employees, yet we understand little about the impact of the changes on those who must enforce them. To what degree do their perceptions influence the behavior and attitude of those they manage?

Major organizational transformations redefine the psychological contract characterizing the employment relationship between employee and employer. The changing employment contract is an important phenomenon worthy of attention by scientists and practitioners alike. Speculation on the implications of the changing employment contract suggests the need for both additional research and employment policy review. ■

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the photograph as transparent reflector of 'reality' Barthes's critique of narrative realism in the 19th century. Like the classic realist novelists, the police or scientific photographer suppresses all evidence of the production of the photograph as a guarantee of the product's untainted and objective 'truth'.

From T. Bennett et al (eds), Culture, Ideology and Social Process. Open University Press, 1981.

1 Culture, Leisure, Society – The Pluralist Scenario

Kenneth Roberts

I Theories of leisure, theories of society

It is hardly realistic to treat the class domination theory as a set of hypotheses to be rigorously tested through a strategically-designed research project, since this level of theory rarely proves wholly right or entirely wrong. Many writers have already proved that modern societies are sufficiently complex to offer numerous illustrations both in support and opposition. As the previous chapter has demonstrated, it is not difficult to illustrate the processes to which the class domination theory draws attention. There are scores of advertisers attempting to shape public taste, and many examples of governments promoting uses of leisure conducive to 'upright' citizenship. It was not just a desire to give young people a good time, but the concern engendered by an apparently anti-social youth culture that led to the appointment of the Albemarle Committee on the Youth Service whose report in 1960 led to a substantial injection of finance. [Albemarle Report 1960] Like the mass society analysis, the class domination theory spotlights genuine tendencies. Few would dispute that the theory also serves a purpose in sketching and alerting us to a scenario that *could* become a reality. But to exactly *what extent* does the theory explain leisure behaviour and provision in present-day society? While class domination theorists are mainly of left-wing persuasion, their theory is most readily reconciled with reality in the socialist world. In Western societies there are convincing grounds for insisting that the tendencies upon which the theory rivets attention remain, as yet, subservient to other processes. Furthermore, as we shall see, much of the evidence that the theory marshals is susceptible to alternative and, on balance, more convincing interpretation.

Source: K. Roberts, *Contemporary Society and the Growth of Leisure*, Longman, 1978, from Chapters 6 and 7.

The functions of leisure

Some correspondence between uses of leisure and the wider social order is inevitable. Leisure may help to consolidate the social system, offering gratifications which act as safety valves reconciling men to an otherwise unacceptable society. Leisure may also carry the imprint of values consistent with existing economic and political practices, thereby legitimising the social order. But does it necessarily follow that these functions of leisure are manifestations of an oppressive capitalist infrastructure together with its state apparatuses of social control? The truth is that leisure, or the alternative forms in which play can be institutionalised, performs comparable functions in all societies.

In his discussion of sport and games in Samoa, Dunlop describes how play integrates the community, provides an outlet for feelings of rivalry, celebrates socially significant occasions such as weddings, and teaches skills that are useful in other social roles from warfare to fishing. [Loy & Kenyon 1969]. It is difficult to see how uses of leisure could ever remain uninfluenced by the broader social contexts within which they are developed, and the fact that such influence can be discerned in our own society is hardly a ground for criticism.

The comparative research undertaken by J. M. Roberts and B. Sutton-Smith has identified some of the processes through which the surrounding context can shape leisure behaviour. [Loy & Kenyon 1969] These investigators collected information about the games played in a large number of relatively simple societies. They classified games according to whether physical skill, strategy or chance predominated, and found that each type of game tended to enjoy prominence within a particular type of culture. Games of physical skill proved most common in societies where mastery of the environment was a principal challenge. In contrast, games of strategy were prominent in more complex societies where child-training stressed obedience and following rules. Games of chance were most common in a different type of setting; where there existed a pervasive belief in an omnipotent, supernatural being. Roberts and Sutton-Smith interpret this evidence as suggesting that games perform an expressive function, relieving anxieties that broader patterns of social life generate. Hence the type of game that is popular depends upon the type of anxiety that a particular society engenders. When the emphasis is upon achievement and mastery of the environment, games of physical skill can offer a form of simulated achievement. In contemporary America, therefore, such games are most common among men in the higher socio-economic strata where childhood-training stresses individual achievement. In contrast, games of chance are prominent among women, reflecting the relative passivity of the female role.

In opposition to interpretations derived from conflict theory, functionalist

sociologists have brought leisure within their own perspective. Whereas class analysts see leisure as reflecting and reinforcing broader patterns of conflict and domination, functionalists stress the contribution of leisure to the well-being of society as a whole. They draw attention to leisure as an arena in which individuals can develop and practice generally useful skills such as sociability, and how consorting with people who 'understand' enables life's tensions to be borne. [Smigel 1963] These are exactly the kinds of evidence to which the class domination theory draws attention, and the inescapable conclusion must be that this evidence is susceptible to alternative interpretation. Contemporary sport may display the imprint of the capitalist infrastructure. But so what? In a capitalist society enterprises are inevitably going to profit from leisure. Likewise the technology and styles of organisation in wider use are inevitably going to be incorporated into leisure industries. These extensions from the rest of life into leisure occur in all cultures. It is difficult to conceive of a society in which people will not use opportunities for play to release tensions, and to develop skills and personal attributes which are more generally rewarded. If such features of leisure can be discerned in our own society we should not be surprised, and neither should we rush to the conclusion that our leisure is particularly unfree. Gardner has illustrated the numerous ways in which American sport reflects the surrounding culture. [Gardner 1974] The commercialism and competitiveness that are valued in economic life spill over into sports, which are then prized for nurturing and rewarding these American values. To gain acceptance in America, it helps if sports can manifestly demonstrate their consistency with American values and character. Indeed, Gardner argues that the popularity of baseball can only be fully understood when account is taken of its advantage in being a peculiarly American game. These linkages between sport and the wider social order are not in dispute. But what do they prove? Do they reveal American sport as an apparatus of social control and domination? Or are we merely confronting interrelationships between leisure and other institutions that are inevitable in any society?

The role of the state

Without denying all credibility to the class domination theory we must recognise additional grounds for state involvement in recreation. It is possible to account for a great deal of state involvement in leisure without attributing any sinister motives. To begin with, it is difficult to imagine any society in which the state could adopt a completely *laissez-faire* approach to recreational tastes and behaviour. Rape and Paki-bashing might amuse sections of the contemporary British public, but the remainder surely have a right to protection. If we want to live in a society as opposed to anarchy, leisure

activities must be contained within a framework of law. Until we have a totally consensual society, there will always be arguments about whether the public needs protecting from influences that some consider harmless. At the moment the availability of alcoholic drink, opportunities to gamble, and the right to witness sexual acts on screen and stage are cases in point. Government controls in these areas cannot be realistically interpreted as signs of a repressive state in action. That these issues are at all controversial simply reflects the fact that different sections of the public possess different tastes and values.

Second, if they attempt to plan the use of land, governments must inevitably become involved in planning for leisure activities that involve using large spaces in either urban or rural areas. If national parks and other places of 'natural beauty' are to be preserved as recreational resources and managed so as to cater for the visiting public with car parks, toilets and other facilities, is there any alternative to supervision by some public body? Similarly if land in urban areas and on the fringes of cities is to be kept available for sport and recreation, it is difficult to see how this can be guaranteed except by the state. Two-fifths of all the land in England and Wales is currently subject to some type of active conservation [Patmore 1972] and it is impossible to believe that the public's scope for recreational choice would be enhanced by removing this control. Likewise with other resources where the supply is finite, including broadcasting wavelengths, it is difficult to imagine the public being adequately served by anything other than a system of government regulation.

Third, a great deal of local and central government involvement in the leisure field is the inevitable by-product of quite different concerns. Rightly or wrongly, depending upon the political philosophy, since the nineteenth century governments in Britain and other industrial societies have been assuming a widening responsibility for public welfare by promoting, for example, health and education. These concerns unavoidably spread into leisure. Although today they are increasingly recognised as recreational services, the libraries, parks and swimming baths administered by local authorities in Britain were not originally developed merely to allow people to enjoy themselves, and they retain important non-recreational purposes. Similarly in America, before the First World War, what can now be recognised as recreation provision normally had other principal objectives, particularly conservation, health, and preservation of historic landmarks. [Van Doren and Hodges 1975].

Finally, if recreation opportunities are to be made available to economically disadvantaged groups, public provision is a logical if not the only method. If the state did not subsidise sport and other forms of recreation that involve the use of land, the majority of children would be unable to participate. The state does promote sport, particularly through education, but it is surely naive to see

this as a subtle plot to implant acquiescent values into the minds of the young, or as a strategy to stimulate a profitable demand for sports equipment. Local government departments responsible for recreation are increasingly paying attention to the needs of other disadvantaged groups including the disabled and the ageing. Some of the services provided remain little known. For example, it is not widely broadcast that in 1974-75 local authorities helped to provide 104,800 people with holidays. [English Tourist Board and Trades Union Congress 1976] As with all other social services, whether or not this provision is desirable must be accepted as open to debate, but the points raised by the class domination theory hardly seem the central issues.

The charge of being laden with middle class values is easily hurled, but it is more difficult to make the indictment stick. Which recreational tastes are shared by the majority of middle class citizens but interest only a working class minority? The most popular forms of recreation including television and holidays transcend class boundaries, while other interests, such as the traditional arts, attract small taste publics rather than entire social classes. Public bodies like the Sports and Arts Councils certainly lie open to the charge that the working class is under-represented among their beneficiaries, but who doubts that if any critics could explain how to attract more working class participants the authorities would be happy to respond? In all formally organised activity, including politics and religion, the working class tends to be under-represented.

The entire spectrum of state-supported recreation cannot be whitewashed so casually. It is impossible to contend that all government enterprise in the leisure field is explicable in one or another of the ways outlined above. Why does the state in Britain support opera, squash, ballet and golf? Answers to these questions would hardly be complete without some reference to the social class compositions of the respective taste publics. Why do we subsidise British competitors in the Olympic Games? The preceding discussion has certainly not exhausted the reasons for state involvement in leisure. What has been illustrated is that there are numerous grounds for this involvement, and accounts that see social control writ large across all these endeavours are refusing to acknowledge the complexity of the picture.

The leisure market

Listing the diverse explanations for government involvement is not strictly an adequate answer to less vulgar versions of the class domination theory which disclaim conspiratorial overtones and rest content with identifying the covert social structural consequences of leisure provision. These arguments challenge not so much the motives of politicians and bureaucrats as the effects of their actions. A more satisfactory reply, therefore, is to explain that its

impact upon the public's uses of leisure cannot be as impressive as the scale of government involvement since, in the leisure industries, the suppliers remain subservient to market forces. Consumer sovereignty remains a reality in the leisure market and one reason is that, to date, neither central government nor the local authorities in Britain have developed anything resembling coherent policies for recreation....

In leisure as in other spheres, there is a complex interactive relationship between demand and supply. Demand for a facility such as camping sites may provoke a supply, but it is easy to quote examples of supply-led demand. Until ten-pin bowling was commercially promoted in Britain no one was demanding to play it, and the visible availability of camp sites may increase demand for camping holidays. The relative weight of the influence flowing in each direction between supply and demand depends upon the state of the market. In leisure, as in other markets, a movement towards monopoly increases the power of the suppliers. While pluralism reigns in leisure supply, however, with the existence not only of voluntary and commercial sectors, but an uncoordinated public sector as well, it is the suppliers who are at the mercy of the market forces. It is public taste that has determined how television and radio broadcasting will be used in Britain. Whatever its early aspirations towards educating the public and raising levels of taste, the BBC has found that it can only win a mass audience, thereby justifying its revenue from the government, by catering for existing public interests. Likewise suppliers of sports complexes, arts centres and country parks have to wait and see what uses the public makes of their offerings and respond accordingly. Public provision accounts for only a small part even of organised recreation activity. [Mennell 1976] The providers have no captive audience. It is the public that can pick and choose.

Needless to say, the above comments about consumer sovereignty apply even more forcibly to the commercial sector. It is easy to talk about advertisers foisting their goods and services upon a susceptible public, but things never look so simple from the suppliers' side of the market. Advertisers may often try to shape public demand, but they are more rarely successful. Nine out of every ten new brands launched are failures. During the last 30 years the British public has largely deserted the cinema, the large dance palais, gents' hairdressers, and the bowling-alleys that were built during a short wave of popularity. Anyone who knows the advertising secret to tempt the missing customers back can make a fortune. The recreation business can be profitable, but leisure is a notoriously risky market. Public taste is fickle. Demand for basic necessities is easier to predict. And to complicate the problems of private enterprise, competition from a subsidised public sector is never far from the foreground. A secure position as a leisure supplier requires either a wealthy

patron or a spread of risks across a large number of leisure industries so as to be waiting wherever demand might flow.

Socio-cultural pluralism

As far as uses of leisure are concerned, the public remains far from a single, undifferentiated mass. Our understanding of leisure is aided, but to no more than a limited extent by the mass society theory. Likewise the class domination theory offers insights, but cannot accommodate the greater part of the evidence about uses of and provision for leisure. The models of society offered in these theories are too simple to do full justice to a more complex reality.

Life-styles vary in a host of ways that cannot be explained by reference to the interests of a single dominant class. To explain these variations, it is usually more fruitful to refer to the interests and circumstances of the sections of the public directly concerned. Uses of leisure are related to social class. Working class households view more television, while the middle classes predominate at live theatre. There are few forms of recreation where participation is not somehow related to individuals' social class positions, usually assessed in terms of occupation. For the moment the point at issue is that while social class is certainly a useful predictor of leisure behaviour, the same applies to numerous other bases of social differentiation. We shall also see that age, sex, marital status and education are among the social determinants of leisure conduct. It is important to keep social class in perspective. Social class is important, but some sociologists of leisure display an unnecessary obsession with the subject.

Working class youth culture owes something to its working class foundations, but it also owes a great deal to the fact that its members are young and possess interests that differ from other age-groups. Class analysis never offers more than a partial explanation of leisure. Even with age and social class held constant, uses of leisure vary considerably between the sexes. The data in Table 1 derive from a study of 14-16 year-olds at one Dudley School, [E. Derrick et al.] and illustrate how sharply the life-styles of adolescent boys and girls differ. There are inevitable points of contact, but girls' lives are considerably more home and family centred. When they 'go out', dances and discos are among the most popular venues. Boys are more involved in hobbies, sport, and other forms of active outdoor recreation. Social class is but one among many influences upon uses of leisure, and the sum of the evidence simply will not justify making it the central explanatory concept.

From exposing the limitations of the mass society and class domination theories we can begin to identify a more valid approach to understanding leisure, and the senses in which its growth constitutes a problem. Both the

Table 1 Adolescent boys' and girls' involvement in selected leisure activities (percentages)

Leisure activities	Boys	Girls
Have a hobby	54	25
Dances/discos	49	84
Own a bicycle	64	17
Team sports	30	8
Watch sport	51	23
Visit relations	37	73
Help parents	49	84

mass society and class domination theories draw attention to tendencies that certainly operate but which are counterbalanced, in each case, largely by individuals and primary groups developing their own tastes and interests, and using the media and other facilities for their own purposes. The model of society that best enables us to understand contemporary leisure is a pluralist model — the unofficial ideology of Western society. Sociology has always been a debunking subject, but in this case the conventional wisdom is less out of tune with reality than its more vociferous critics. All grand theories necessarily simplify a more complex social reality, but the pluralist theory offers a better fit than its principal rivals, certainly as regards the analysis of leisure. In Britain and other Western societies there exists a variety of taste publics that possess contrasting interests generated by their different circumstances. The uses of leisure of these publics are certainly influenced by commercial and public provision, but the providers are at least as responsive to the public's tastes, and the public has a distinguished history of saying 'No'. In recreation and other spheres the public uses its leisure to nurture life-styles that supply experiences which the individuals concerned seek and value. 'Freedom from' is a condition for leisure. But there is also a positive side of the coin that involves individuals exploiting their 'freedom to' and leads logically to socio-cultural pluralism, meaning societies in which various taste publics are able to fashion life-styles reflecting their different interests and circumstances. This is the reality of modern leisure, and theories that fail to spotlight this aspect of reality prove only their own need of revision.

The pluralist theory incorporates a relatively complex model of society, but its explanations of leisure behaviour are characteristically economical. In contrast, the class domination theory with its more readily assimilated

imagery of society consisting of dominant and oppressed strata, often has to resort to highly convoluted explanations when faced with the details of leisure conduct. For example, there are theories that purport to relate the appeal of competitive sport in general, and violence among both players and spectators in particular, to class structure and class struggle [Cohen 1971]. Some of these theories would benefit from a touch of Occam's razor. It is advisable to appraise more obvious explanations before embarking upon speculative class analysis. It is difficult not to sympathise with Petryszak's observation that, 'Unfortunately capitalism and its assumed agencies of manipulation including the media, all too often serve as the convenient scapegoats and explanatory catch-alls for sterile sociological thinking' [Smith 1977] Petryszak's own preferred 'bio-social' explanation of violence in sport is theoretically economical and simultaneously persuasive. He commences with the observation that human beings possess a need for group membership, notes that competitive sport can meet this need for both participants and spectators, and proceeds to hypothesise that violence whether on the field or among spectators can heighten collective feeling. Students of leisure are well advised to try relating behaviour to the interests of those directly involved before speculating about the significance of the class struggle.

There are numerous patterns of attempted domination and exploitation in leisure, as is the case in most areas of social life. Middle class interests are more diverse than theories which persistently deplore the oppression of the working class suggest. The self-employed complain about expanding government bureaucracies triggering escalating rates and tax burdens, while the salary expectations and career prospects of new middle class armies of executives and professionals including civil servants, teachers, social workers and medical practitioners depend upon the further growth of public expenditure. [Roberts et al. 1977] Within the leisure industries exploitation is not the prerogative of commercial and political elites. Recreation professionals have their own diverse and vested interests. They include holiday camp workers who use campers as easy sources of money, and sometimes sex as well. Then there are the fairground gaff-lads who skilfully and systematically short-change customers. [Dallas 1971] In so far as exploitation is occurring it is not only the state and propertied classes that are the guilty parties....

There are romantics to whom formal organisation is anathema whether it is commercially or state sponsored and who insist that, to escape alienation, individuals and communities must organise their own leisure. However, there is already plenty of this communal organisation in our own society. This is the living proof of the pluralist case. There are participant-run dart and domino leagues, golf clubs and photography societies, while kids play street football and arrange their own informal games. We have this and more besides. And is

anything lost when schools or recreation departments arrange regular football matches, erect goalposts and provide referees, and when supplies of kit can be purchased? The notion that technology and formal organisation along with their rational values are inherently alienating is surely a misconception. The study of leisure challenges such misconceptions, and the growth of leisure is rendering the broader theories of society from which these notions are derived increasingly suspect.

It is worth noting that despite their deep and often bitter differences, there is little disagreement on basic values between supporters of the class domination and pluralist theories. Both reveal a preference for societies in which members of the public can develop diverse life-styles, supported but not controlled by business and political apparatuses. The disagreement concerns whether this is possible within the present political economy. The pluralist case rests on the claim that while they are certainly at play, class domination tendencies are currently held in check; and that the form of political economy that has developed within Western societies offers a better protection against class domination than any of the known alternatives....

CHAPTER 6

Stages and Themes of Design

In processes of landscape design, the noosphere is joined with the biosphere. It must be abundantly clear by now that ecosystematic design is no simple matter. By attempting to shape the ecosystem in its entirety—to give actual form to ecological processes—it encompasses layers of complexity that have been beyond the scope of landscape design until very recently. Dealing with different concerns related to different integrative scales implies a multiplicity of modes and approaches that further complicates matters.

Managing such complexity requires coherent processes; it forces us to proceed in a systematic, consistent, clearly explainable sequence of steps. The very notion of design process is itself fairly new to landscape design. Until the mid-twentieth century, no one cared how a designer came up with a design. It was generally assumed to be a somewhat magical leap of intuition, and whether one liked the results or not, one did not question their origins. One simply accepted or rejected them.

This is not to say that the necessity of assembling information on which to base design proposals was only recently recognized. Frederick Law Olmstead did careful analyses of natural processes, although the knowledge of them in his time was limited. And we have seen that Patrick Geddes described the role of the city survey, which included maps describing topography, soils, geology, and climatic factors, in addition to population distribution for "the town and its extensions," during the early years of the twentieth century. These were also the years of what Carl Steinitz calls the "professionalization of data" by U.S. land management agencies.[1] John Wesley Powell also supported his proposals with analyses of the landscape, sketchy though they were.

Sometimes the information base was quite elaborate and sophisticated. Steinitz cites the example of Warren Manning, who, beginning in 1912, built a data base of 363 maps describing every conceivable physical characteristic of the United States. When the data base was complete, he drew up a master plan, showing a land-use pattern for the whole country. But, Steinitz points out, "... there was no obvious link between the data and the design."[2] The heart of the design process still remained obscure.

Some major regional design efforts were also carried out in this way. The New York regional plan and the Tennessee Valley Authority plan are examples.

THE DEMAND FOR RATIONAL PROCESS

Nonetheless, that was another era. Since mid-century, the world has changed. Since the 1960s, interest in the processes of design has grown rapidly under the influence of a number of factors whose importance seems likely to become even more drastic in the future. It will be worthwhile to spend some time examining these factors because they may tell us a good deal about what we might expect to accomplish by rational process in design.

Probably the first factor to emerge was the "environmental movement," which shed light on the enormous changes that human use of the land was bringing about in natural systems. This was the period when it became clear that we were using up our stored resources at alarming rates, disrupting the processes that support life, and radically altering natural populations, and that we were doing all these things largely by our misuse of the land. Natural systems, obviously, are enormously complex, and in order to deal with them, we needed design principles that could deal with such complexity. We needed processes that were able to apply large, diverse quantities of information.

Partly as a result of the emerging ecological awareness, challenges to land-use proposals began rising from the general population, which had been little concerned with such matters before. Federal agencies particularly felt the heat. Dams, flood control projects, and timber cutting practices became common targets of public indignation. The angry battle over Glen Canyon Dam was symbolic of the era, but private development projects were commonly challenged as well. Court battles became commonplace, and a great many cases were lost by project proponents, even those with quite sound plans, for lack of a clear demonstration of the validity of their proposals. Courts demanded rigorous logic, and the need for defensible plans became blindingly clear.

Related to these challenges was a growing insistence by some citizens' groups as well as by people in decision-making capacities for participation in the design process. They wanted to review plans as they were being developed, and they wanted to have their own ideas considered. To do so, they had to understand the process, which meant that it, and its results as well, had to be communicable.

And then came the bombshell: the National Environmental Policy Act of 1969. Whether or not it is true that the requirement of this act for an environmental impact report for projects significantly affecting the environment was only a minor afterthought, it was profoundly significant. The various state acts that followed the federal one also included the impact provision, and it changed the way land use is determined in the United States. Although some prediction of consequences was certainly implied in earlier

[1] See Steinitz, 1979; p. 15.
[2] Ibid., p. 15.

internalized ad hoc methods, and responsible landscape architects had always considered the effects of their designs on natural systems, prediction now became an explicit requirement.

All these emerging concerns and the related legislative and judicial decisions pointed to the need for clearly defined processes of design and established the criteria for their effectiveness. These included

1. A *capacity for complexity,* or the ability to use a great deal of information from a variety of sources on many different subjects from diverse disciplines
2. A *capacity for prediction,* or the ability to estimate the potential effects of a proposal on the existing environment
3. *Defensibility,* or a clear and logically correct framework to support claims
4. *Communicability,* or the ability of a proposal to be understood by the general public.

Each of these criteria emphasizes analytical aspects of design at the expense of the intuitive ones that had so long held sway. Not surprisingly, most of the experimentation with design process that was given impetus by these new demands followed suit. Some of the theorists of design process envisioned methods that would be as clear and precise, as conceptually simple, as those of science itself.

The series of steps that serves, more or less, as the standard paradigm for design process has the simplicity of scientific method, but lacks the precision. RESEARCH—ANALYSIS—SYNTHESIS—EVALUATION is a reasonable enough sequence of events, but it really tells little more than that we need to know something about the subject matter before trying to reshape it. The terms are too abstract to tell us much about what we actually do.

Perhaps more disturbing is the implied linearity in this sequence, a hint that if one follows these steps, one will inevitably arrive at the single best design. Much of the pioneering work in design process accepted this implication. In fact, the idea that there is a best way that will lead to the best plan still permeates a great deal of the *thinking* on the subject. Nature, it is sometimes said, will tell us what to do. As a result, the purpose of design process sometimes seems to be merely to interpret for nature.

In reality, however, nature is silent, ambivalent, contradictory. We know now that she will not tell us what to do. In any given situation, any number of different plans are possible. The recognition of diverse possibilities is the all-important element missing from the four-step paradigm and from so many other efforts to define design process. Recognizing possibilities takes creative thought, and creativity tends to be stifled by a rigid framework of logic. When we stifle creativity, we shut out a great many possibilities, and in a world that so desperately needs better solutions, that is something we cannot afford to do.

We need to dispel, once and for all, the notion that design is, or can be, a science. The very nature of the scientific method requires that the world be broken down into ever smaller parts in order to understand how it works. Science seeks to control, to ignore all of the variables save one in a situation, and then to learn something with absolute certainty about that one variable. Design necessarily deals with all of the variables simultaneously, and not only to understand but to project new forms. Moreover, scientific knowledge depends on the separation of the scientist from his subject, of man from nature, whereas a designer is necessarily an integral part of the landscape he deals with. Detached objectivity is not possible; influence is inevitable. Although using the knowledge gained by science, the purpose of design is putting things—often very diverse things—together, but never with the hope of absolute certainty. Design is ultimately an integrative activity. To quote *The Aristos* of John Fowles:

> The scientist atomizes, someone must synthesize;
> The scientist withdraws, someone must draw together;
> The scientist particularizes, someone must universalize: ...
> The scientist turns his back on the as yet, and perhaps eternally, unverifiable, and someone must face it.

We still need intuition and imagination; the baby should not go out with the bathwater. Our real challenge is to apply both creative and analytical modes of thought to design processes.

Modes of Thinking

One hears a great deal of talk about combining analytical and creative thinking, but one hears of very few specific ways of consummating the marriage. In practice, they are rarely successfully joined because they are so fundamentally different. Research on the workings of the human brain suggests the possibility that these two modes of thought are separate functions, emanating from two separate halves of the brain. Thus, they may be not only symbolically opposite but physically opposite, each half underlying one of the two major modes of thought and consciousness.[3] The left hemisphere would appear to specialize in analytical, logical thinking, primarily in linear sequence, while the right specializes in what psychologist Robert Ornstein refers to as "holistic mentation; ... its responsibilities demand a ready integration of many inputs at once."[4] Intuition and creativity seem to reside here.

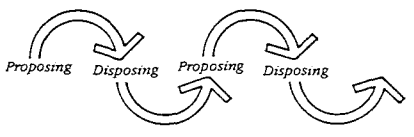
Thus it is our analytical side that establishes and follows an orderly sequence, that organizes complex information, and that describes what is there. Its biggest shortcoming is that it cannot go *beyond* what is there. Only the creative side can intuitively grasp complex situations, can leap into the future and its possibilities, and, by imagining what might be, can pose hypotheses, questions, images, and goals. Its biggest shortcoming is that it may or may not be right and by itself has no way of knowing whether it is right or not.

Since each human brain includes both sides, and since the intricacies of design clearly require both sets of capabilities, we need to understand how to incorporate what Ornstein calls this "fundamental duality of our consciousness"[5]

[3] See Sperry, 1964.
[4] See Ornstein, 1972; p. 52.
[5] Ibid., p. 58.

into processes of design. Whether design is the task of a single mind using both of its halves in interacting harmony, or a team effort in which each member contributes primarily the efforts of a single side, it is important that the two sides work together. Without some understanding of how this cooperation can be achieved, one side or the other may well dominate the process without the designer or team being aware that this is happening; worse yet, they may negate one another's efforts in a silent war. Psychiatrist Roberto Assagioli calls it "... a stormy and difficult marriage ... which sometimes ends in divorce."[6]

As a practical matter, the two very different sets of capabilities suggest a simple strategic division of responsibilities. We might say that the creative side proposes and the analytical side disposes (using the term "dispose" in the dictionary sense—to put in order or to apply to a particular end or purpose—rather than in the more common sense of disposing of—getting rid of—although the latter is also a common task of the analytical side). Proposing and disposing are alternating activities throughout the entire process of design, like the continuing interplay of creation and adaptation in natural evolution, providing the alternating current—albeit an irregular one—that charges the entire process.



They come most dramatically into play in the later stages, when the right side proposes forms and solutions and the left side puts them in order and evaluates. Nevertheless, proposing and disposing go on all the time, even in the early analytical stages. The intuitive side might notice, for instance, that the waters of a lake are murky and thus propose to focus on water pollution as a major issue in developing a plan for its watershed.

The analytical side might then examine the facts and find that that there are heavy concentrations of nitrates in the water and the siltation rate is too fast. Water quality then becomes the issue, with emphasis to be placed on grading and the proper use of fertilizers. Or one initially thinks that a soil map might be useful, only to discover that soils in the entire region tend to be homogeneous and that preparing a soil map would take six days. Or one dimly perceives that the flow of water probably follows a definite pattern, so one gathers the data and constructs a model and finds that it does indeed work that way.

While the importance of these alternating roles in design processes is usually overlooked, it is widely recognized in some other fields. Writing of his work, psychiatrist Assagioli calls intuition "the creative advance toward reality" and assigns intellect three tasks: "the valuable and necessary function of interpreting, i.e., of translating, verbalizing in acceptable mental terms, the results of the intuition; second, to check its validity; and third, to coordinate and to include it in the body of already accepted knowledge."[7]

The scientific method has long used such a dualistic sequence, proposing by hypothesis and disposing through experimentation. Although the popular notion of science is one of analytical activity, the important discoveries invariably involve intuitive leaps that produce ideas of what could be. James Watson's story of the discovery of the double helix is one dramatic instance.[8] The analytical verification and proof then follow, usually taking far more time but certainly no more important.

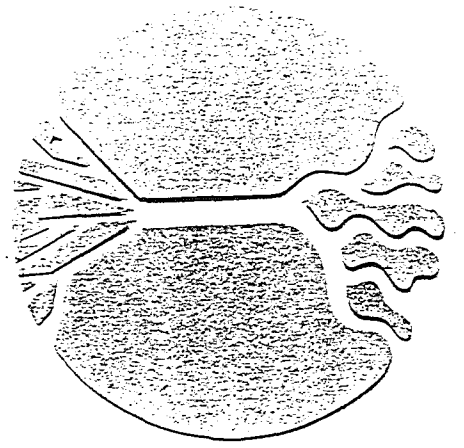
The alternating cycles may be clearest in the processes of learning. Designers often notice how much the experience of design is like that of learning. Indeed, we can see design as being quite literally a learning activity. It has long been recognized that learning is commonly characterized by an ongoing cycle of freedom and discipline. Years before the roles of the two sides of the brain were well understood, Alfred North Whitehead explored these matters in some detail by stating that "discipline should be the voluntary issue of free choice, and ... freedom should gain an enrichment of possibility as the issue of discipline" and "all mental development is composed of cycles, and of cycles of such cycles."[9] With freedom, we explore and ponder. In a new situation, if we have the freedom for it, we move from one idea or experience to another, sampling each, letting the whole sink in. Discipline, then, when we are ready for it, is undertaken to satisfy a craving for ordered knowledge that grows from these free explorations. When we have gained the ordered knowledge of the subject, then that knowledge gives us a new ability to explore and to produce, to intuit and invent in a directed way, and thus a new freedom.

Whitehead thus divides learning into three stages, which he calls the Stage of Romance, the Stage of Precision, and the Stage of Generalization. These will sound extraordinarily familiar to anyone who has survived the experience of design. More to the point, they will sound very much like what his instincts were urging while the power of convention was insisting on unremitting information gathering and analysis.

The Stage of Romance is that first stage of freedom, of apprehension, of exploratory excitement. Says Whitehead, "... it holds within itself unexplored connections with possibilities half-disclosed by glimpses and half-concealed by the wealth of material. ... Romantic emotion is essentially the excitement consequent on the transition from bare facts to the first realizations of the import of their unexplored relationships."[10] For us, it is set off by the perception of a landscape with its implications of infinite complexity and a fluid set of conditions that foretell impending change. Possibilities and connections are there to be explored and sorted out, and among them are hints and suggestions of a new order that we might eventually be able to shape. This stage is dominated by the intuitive, or right, side of the brain, although there are cycles within the larger cycles so that the analytical left side plays a role here too.

In the Stage of Precision, the material of romance is put into systematic order. The left side assumes control, but not without frequent proposals from the right. Discipline and the rules of logic lead the way to ensure factual correctness. Our exploration of possibilities and connections in the Romantic Stage has revealed what our concerns are and given us a solid notion of where we are going and how to get there. Now we gather and organize the information we need, break the whole down into its parts to gain a thorough knowledge of how they really work, and put them back together in a way that formalizes that understanding. With this analytical knowledge, we gain a new freedom to explore, this time armed with the necessary information and techniques to conduct our search with a realistic sense of limits and actual potentials. This is the Stage of Generalization, in which the right side again assumes command, though still with the continuing counsel of the left. During this stage, we imagine possibilities, evaluate and compare them, and eventually arrive at a plan.

We can imagine these three stages of learning, or design, as being like the flow of a river. It begins with an array of streams, pools, and channels, flowing in varied intriguing



and mysterious ways. We know they are all interconnected, but most of the connections are hidden from view. During the Romantic Stage, we follow the network branch by branch to where it all converges in the single broad stream of the Stage of Precision. There are few choices here but to follow it along between well-defined banks until it emerges into the coastal plain and begins to spread into the diverging network of a delta, the Stage of Generalization. Here we have branches and sub-branches, pools, and wetlands—winding, twisting, turning back. But beyond, the sea looms on the horizon, and eventually that is where everything converges and becomes one.

[6] See Assagioli, 1971, p. 217.

[7] Ibid., p. 224.

[8] See Watson, 1968.

[9] See Whitehead, 1929, pp. 30 and 31.

[10] Ibid., pp. 17 and 18.

THE SYSTEMS APPROACH

Understanding design as a learning process, then, helps us to grasp and to exert some control over the sequence of the mental attitudes involved, and perhaps most important, dispenses with the limiting notion that analysis is everything. But it still leaves us far short of any real definition of method that can fulfill the four criteria listed earlier. So we will return to the subject of rational process. For further guidance, we can turn to two fields that have been concerned with rational processes for solving complex problems since their emergence during World War II. These are the systems approach and decision theory.

The systems approach, for all its influence in planning circles, is virtually indefinable. Every book on the subject provides a different definition, and more recent works have tended to offer narrow, technical definitions. In very general terms, however, the systems approach is a logical structure for problem solving that emphasizes interrelatedness, the notion that if we alter one part of a system, we inevitably alter other parts and, ultimately, the whole. In addition to this basic idea, the systems approach includes at least four characteristics that make it especially interesting to environmental designers. These four are the consideration of problems in the largest possible context, the use of models, the role of feedback, and interdisciplinary organization.

Context

The idea of larger context is especially important for landscape design because in dealing with natural processes, as we have seen in our consideration of scale, everything is related to everything else. The systems approach, according to Churchman, is "based on the fundamental principle that all aspects of the human world should be tied together in one grand rational scheme. ..."[11] The scales of concern give us at least the outlines of a framework for such a scheme with respect to the landscape. In terms of the systems approach, we might think of the levels of scale as systems and subsystems.

Models

As for the practice of using models, this was not entirely new to environmental designers. They had used physical, three-dimensional models for centuries. Nevertheless, the broader concept of the model as proposed by the systems approach and its vast implications were entirely new. A model in this broad sense is simply an abstract representation of reality. Its purpose, usually, is to reduce the infinite complexity of real phenomena to manageable terms. In making a model, one tries to draw out the essential characteristics of a real subject and put them together in a way that mimics the relationships that exist in reality. The model can then be used to develop a better understanding of the workings of the real phenomenon, or it can be manipulated as a stand-in for the real thing in the process of redesigning it.

The models used in systems analysis are usually mathematical, that is, the stand-ins for reality are letters a

[11] See Churchman, 1979, p. 8.

numbers. For a great many people in the field, the systems approach means categorically the use of mathematical models. For others, however, even for at least one of the founding fathers of the field, C. West Churchman, such models have lost much of their appeal. Churchman argues, correctly I believe, that a great many of the more serious issues of society are not subject to mathematical precision: "In the first place, we don't know enough to be precise, nor would attempting to be more precise help us very much."[12] Certainly, this is as often true in the shaping of ecosystems as in other fields of systems application. Usually, there are too many variables, too many unknowns, too many intangibles, too many qualitative matters like visual character. Thus, we find that other kinds of models can often be more useful.

Nevertheless, the use of models, especially several types of graphic models, which may or may not be quantified, gives us means for dealing with the infinite complexities of the landscape, especially at the larger scales. Models can represent dynamic processes as well as static forms, and they can make available the power of the computer.

Feedback

Feedback is a key concept in understanding how almost any process—natural or human—works. There are two types of feedback: positive and negative. Positive feedback is information concerning the state of a system that is used to increase or amplify change in a particular direction. Negative feedback is information that is used to dampen or decrease the rate of change. Processes of growth, change, and stability in natural systems are explained mostly by negative and positive feedback, and the same mechanisms are at work in human systems, although in these they are usually harder to understand and describe. It often happens that environmental degradation and reckless use of resources can be the result of the elimination of negative feedback. As the gargantuan Los Angeles water import system grew, for example, every protesting and objecting voice (negative feedback) was eliminated by political or economic force, and the system continued to grow until well into the nineteen-seventies despite serious and obvious problems.

As we carry through the design process, proposing and disposing, we continually test and reiterate information, models, and ideas, questioning and reshaping. After the forms imagined in the design process have been executed, the feedback loops continue, now in a real world environment, through management. Information, models, and ideas are tested and reiterated in reality. Thus feedback becomes a way of compensating for the imperfection of our predictions, which are necessarily crude and will probably never be able to take into account all causes, chance events, and the like.

Crossing Disciplines

As for interdisciplinary activity, this is not entirely new to environmental design either. Even the smallest landscape design problem—a single house or a backyard—involves information drawn from a variety of disciplines. In fact, to a practical designer, the fact that the nurturing of plants, the quality of soils, and the mechanics of structures are all considered different fields of study seems strange. He routinely works with all of them and thus automatically functions in an interdisciplinary way. At larger scales, however, more disciplines enter the picture, each of them introducing yet more complex information and techniques, and the task of assimilating and integrating them all into a coherent whole becomes very daunting indeed. A design effort at the plan unit or project scale might routinely include such diverse items as behavioral observations, attitude surveys, economic assessments, hydrological studies, and estimates of solar radiation incidence, among others. The means of fitting such an array into a logically defensible process are a major concern of the design method for such projects, involving the use of matrices, flow charts, and other devices adapted from the systems tool kit. Usually we need to consult specialists in some of these fields, and often the specialists join together in interdisciplinary teams. The organization and management of such teams are thus important aspects of the design process.

[12] Ibid., p. 20.

SYSTEMS APPLICATIONS IN DESIGN

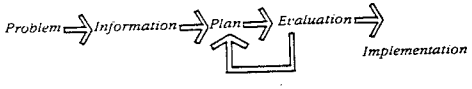
Besides the fact that they had long been familiar in rudimentary form and were known by other names or no names at all, these systems concepts had another characteristic that made them appealing to designers and planners. This was the fact that each of them translated a mechanism that was observably at work in nature into terms that made it possible for the human intellect to put it to practical use. Thus, it became apparent that processes of design could work in ways quite similar to the other processes of nature that are its subject, suggesting a satisfying harmony of mind and matter. For this reason, the systems analysis approach found ready acceptance. The work that probably did the most to spread awareness of its potential uses in environmental design was Christopher Alexander's *Notes on the Synthesis of Form,* in which he described the application of linear programming logic to the design of a village in India, using very specific relational criteria.

Ian McHarg's *Design with Nature* in 1969 described the methodical application of map overlays to define the suitability of land for various uses. Map overlays in themselves were nothing new, but McHarg's use of matrices to analyze interactions between land variables and human activities relied on systems techniques for interdisciplinary analyses. His process, like Alexander's, featured a logical sequence of steps that led, seemingly unarguably, to the best arrangement, without any apparent need for exploring other possibilities. In this sense, both processes are examples of what decision theorists call a technical decision-making process. Such a process is generally used in situations where goals are clear, agreed upon by everyone involved, and noncontradictory, that is, where all can be substantially achieved without infringing on others. In the technical process, each step is made because it pushes the sequence of steps most effectively toward its given end or solution. There is no formal need to consider options or varied possibilities because, in the light of established goals, the most effective plan quickly becomes clear as the sequence is completed.

In the case of McHarg's method, the goals are quite clearly stated in terms of his "presumption for nature." While McHarg was widely criticized for not taking other factors into account,[13] his process is entirely justified by the clarity of his goals, however limited one might consider them. For him, minimum intrusion on natural processes is the guiding aim that makes it possible to proceed step by step to the one best solution. In practice, however, it is rare, especially when working with landscape issues at the larger scale, to find such clear agreement on goals. Usually, in fact, the planning effort is given its original impetus by sharp differences in purpose, and the whole process is enlivened by conflict from beginning to end. Although it may be possible to agree on general goals or objectives, they are still likely to be ranked quite differently by different people. A development company and a preservationist group might agree that providing housing and preserving wildlife habitats are both worthy goals, but they are not likely to agree on their relative importance.

The technical process can usually be quite effective at the smaller scales, particularly at the construction and site levels. At these scales, and often at the project level, relatively few people are involved in decisions and the major ecological goals have already been established (as suggested in Chap. 2), at higher levels. The Simon Residence, Madrona Marsh, and High Meadow case studies all show such situations. In the High Meadow example, the basic technical sequence was varied somewhat by evaluating and reiterating the concept plan several times, but the goals and direction remained the same. Reiterations of this sort are almost always essential parts of any design process in the sequence of proposal and disposal, whether they are formally expressed or not. It is important to consider and reconsider various possibilities, if only in the mind's eye or through quick sketches. As feelings and intuitions enter in and assume dominant roles, the technical process can resemble a poetic process that uses less explicit information. At the extreme, it might seem entirely nonlinear, but the basic sequence remains the same. Even a poem has to begin with an idea or observation or feeling that leads to words in a definite order.

Where the iterations occur expressly as steps of the technical process, we might illustrate this diagrammatically as follows:



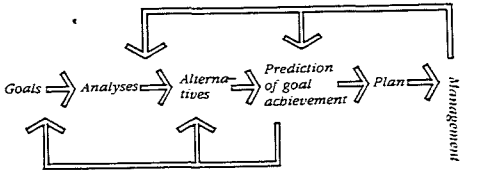
TYPES OF RATIONAL PROCESS

In more complex situations, where different goals or priorities are involved, or where they compete or are mutually exclusive, or where the means of reaching them are not clear, or where the goals cannot be articulated at all, more complex processes are called for. In such situations, the logical sequence, not being guided or constrained by clear goals, is broken between the Stage of Precision and the Stage of Generalization, and the process is thus opened to more varied possibilities.

This brings us to the rational problem-solving paradigm adapted from the systems approach and widely used in planning. It relies heavily on the consideration of alternatives and on evaluation and feedback and can be described as a sequence of steps that proceed more or less as follows:

1. Statement of goals
2. Analysis
3. Development of alternatives
4. Comparative evaluation of alternatives by some measure of goal achievement
5. Selection of the most effective alternative or, if none proves adequate, a return to step 2
6. Implementation
7. Monitoring

If we combine implementation and monitoring into one box that we will call management, the rational sequence can be diagrammatically illustrated as follows:



This process, sometimes called *the* rational paradigm, is often considered the major contribution of the systems approach to the environmental design fields. John Eberhard posed it as holding promise for a wide variety of architectural design problems,[14] for example, and Darwin Stuart reduced it to a three-step sequence—identifying programs, predicting effectiveness, and evaluating alternatives—with wide application in urban planning.[15]

The basic sequence of the rational paradigm is actually quite an old one, much older than the systems approach. It goes back at least as far as John Dewey's ABC steps: What is the problem? What are the alternatives? Which alternative is best? Certainly it is a sequence with universal applications. In applying it, however, we encounter certain important differences between the environmental design fields and the areas in which the systems approach has had its greatest successes. In the space and war-related industries, engineers and decision makers use this process in a rigorously quantified way. Goals are stated in terms that provide for measurement of achievement in precise quantities, often monetary. The criteria for choices usually boil down to a matter of efficiency. Although the problems may be technically complex, the quantities involved are known or measurable, and the values clear and singular.

[13] See especially Gold, 1974.

[14] See Eberhard, 1968.

[15] See Stuart, 1970.

Economic and Ecological Rationality

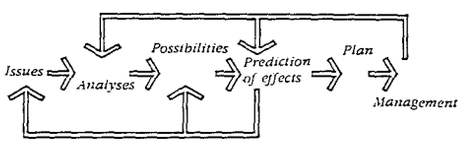
This state of affairs is rarely the case in landscape design. In the first place, the ecological and social factors that are the main areas of concern and the bases for choice among alternatives are hard to measure and almost impossible to quantify in terms that allow numerical comparison. According to the integrative laws, the larger goals, usually meaning ecological goals, are passed down to each scale from the next larger scale. Where all is working as it should, then, there exists a context of congruent larger goals, but there are other goals, often local ones, which are frequently in conflict among themselves and with larger ones.

In practice, it is sometimes difficult to state goals at all, beyond those clearly established at larger scales, until we know what the possibilities are. Since we are dealing here with inherently political situations involving different interests, purposes, and points of view that if not in conflict are at least incongruent, it is often far easier to articulate issues than goals. Often, then, we find ourselves beginning a design process with a set of concerns rather than a set of definite goals. We must then proceed from the concerns to an articulation of the issues and use this as a springboard for the design process. Goals in these cases are clarified only near the end of the process when we have to choose among possibilities, or perhaps they are never really articulated at all.

The Bolsa Chica case study provides an example of an issue-oriented process. Bolsa Chica Lagoon occupied a politically volatile urban situation, with a tangle of special interests and citizens' groups promoting different uses. There being no agreement on goals, none were formulated. Instead, the issues were used as bases for alternatives, and these were compared in terms of the four major areas of concern: wetland (environmental) enhancement, community enhancement, public protection, and socio-political acceptability. Lacking any way of quantifying these effects, they had to be estimated in relative terms.

In its pure form—driven by clearly stated goals, with precise quantification and efficiency as the criteria for selection—the rational paradigm corresponds to what decision theorists call economic rationality. As compared to technical rationality, which is founded on congruent sets of goals, economic rationality is founded on sets of goals that cannot all be maximally achieved by any one design. Thus, alternatives are needed to find the design that satisfies to the highest degree the most desirable set of goals. In economic terms again, this is an allocative decision.

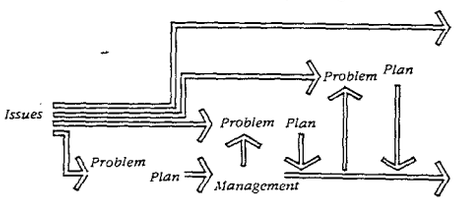
This definition, however, is too limited in scope and too committed to quantification and to efficiency as the measure of performance to be entirely suited to the purposes of ecosystem design. Therefore, as a third mode of rational process that can deal with the broader, more varied, less precise, less determinate character of the larger landscape, I will propose what might be called ecological rationality. This mode is really a variation or expansion of economic rationality but different in that it is driven by issues—that is to say, by conflicting goals and by questions rather than by simple congruent goals—that it is exploratory in having to consider a wide range of possibilities, and that it evaluates alternatives on the basis of their predicted performance, this often being qualitatively measured in relation to, and in terms of, the natural, social, and political environment. Accepting Paul Diesing's assertion that a decision is rational when "it takes account of the possibilities and limitations of a given situation and reorganizes it so as to produce, or increase, or preserve some good."[16] Such a process is no less rational than the economic process, although in its more flexible character it works more like a natural process. It is most often applicable at the project and plan unit scales. We might diagram an ecologically rational design process as follows:



Legal Rationality

Diesing identifies three other kinds of rationality that are of interest here. These are legal, social, and political rationality. Each is appropriate for application in certain distinct types of decision-making, or design, situations.

Legal rationality depends on rules usually determined at the larger scales to define what may and may not be done at the smaller. This is one way, though often an unnecessarily rigid way, of transmitting goals from a larger to a smaller scale and ensuring that work at the smaller scale will become the instrument for realizing larger goals. Zoning ordinances are examples of mechanisms of legal rationality, as are water quality standards established by the U.S. Environmental Protection Agency. These standards are enforced by regional water quality control boards, which review all water-related projects within their jurisdictions. Thus, the regional boards take their goals from the larger (national or subcontinental) scale and their mechanisms from the smaller scales, as previously described.



Legal requirements enter into almost every design process to some degree, of course. Grading standards, minimum pavement widths, and setback requirements are common examples. In some fields, such as highway and sewage-treatment plant design, the rules have become so thorough in their coverage of the design variables that the legal process, that is, rule following, is generally accepted as the only workable design process. Although minimum standards are assured, the disadvantages are serious. Legal rationality often defies the integrative laws by prescribing mechanisms as well as goals at higher levels, thus creating inevitable difficulties.

[16] See Diesing, 1962, p. 3.

Diesing identifies four distinct trends associated with legalism: "(1) a trend toward complexity of distinctions and clarity of detail, such as highly technical terms, (2) a trend toward clear and distinct hierarchical differentiation . . . , (3) a trend toward uniformity, equality, and universalization where differentials are not involved, and (4) more generally, a trend toward rigidity, unchangeability, action according to rule."[17] Clearly, all these trends conflict with the ideals of creative response, regional differentiation, and adaptation to specific local conditions that are so important to the shaping of a meaningful and functional landscape. Furthermore, since laws must be precise and focus on single subjects, legal rationalism tends to work in the one-problem-one-solution way and thus to produce solutions that create other problems. We have seen this happen with water quality standards, for example.

So what can we do about the proliferation of legalism? The best answer to that question relates to the distinction between goals and standards. This distinction is important here, because while the designer at each scale looks to the next larger scale for his larger goals, ideally he looks to the next smaller scale for the mechanisms by which these goals are to be achieved. In the Aliso Creek example, although water conservation goals were suggested by a regional analysis and a water budget was established for the planning unit, the techniques for achieving that level of water use were developed at the project and site design levels. Thus, the actual ways of using water and achieving larger goals developed from the specific character of the landscape. Had the water budget and water conservation techniques been dictated by rules for the whole region, the design process for the smaller scales would have become a legalistic one, at least for matters related to water flow, and would have been severely and unnecessarily constrained. Performance controls, which establish goals, have some important advantages over prescriptive controls, which dictate the means for achieving them, but they are far more difficult to formulate effectively.

Integrative Rationality

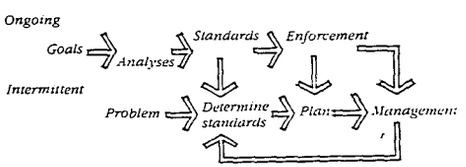
All the rational modes described up to now not only assume our ability to see into the future with reasonable accuracy but take for granted a cohesive institutional structure. Both of these assumptions are doubtful. A host of unknowns lie in wait along the path of implementation of any plan. Changes of direction are inevitable. To make matters worse, although rational plans embrace a broad, coherent range of activities, the institutional structures are usually fragmented into any number of separate parts, or agencies, each of which can undertake only limited tasks. Wheaton wrote that comprehensive planning has usually failed because of its "definition of comprehensiveness in a world that lacks any comprehensive political power or institutions."[18]

In response to this incongruity between rational planning methods and their irrational context, some theorists have proposed more pragmatic paradigms. Prominent among these is the strategy that Alden and Morgan refer to as "disjointed incrementalism, or muddling through,"[19] which foregoes long-range goals and their associated values in favor of solving immediate problems. Since it is usually much easier for diverse groups to agree on such solutions than on larger goals and values, the practical results can be far greater.

And their approach brings us to a mode of rationality that Diesing calls integrative or social rationality. This mode operates incrementally and without long-range goals. Social systems develop in this way, Diesing argues, one small step at a time, as contrasted with goal-seeking technical, economic, and legal systems. Their basic trend is toward greater integration. "A system is integrated when the activity of each part fits into and completes the activity of other parts, and when in addition each part supports, confirms, and reinforces other parts by its activity."[20]

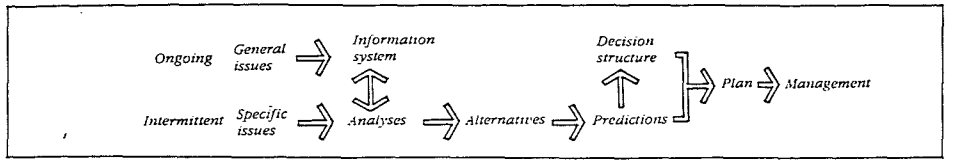
In this mode of rationality, each solution for each immediate problem contributes to social integration and divisive disagreements over goals are avoided. The difficulty, of course, is that larger purposes are likely to be lost, and without a larger purpose we may severely damage resources that may be needed in the future. Solutions to immediate problems can hamper possible solutions to future problems, but if clear, long-term goals are handed down by a higher level of integration, at least the larger ecological concerns can escape this difficulty.

Thus, incremental decisions, if they involve serious consequences, are best made with close attention to a larger framework, with conscious control, and with an understanding of possibilities. In this sense, in its consideration of possibilities and their consequences, a socially rational process is much like a series of miniature ecological processes except that each decision considers only the problem of the moment and the information associated with it. In any case, it is important to let the information base grow. Using the feedback principle, we can continually study the consequences of past decisions and search for new knowledge. Thus, information not available at first becomes available with experience and can contribute to increasingly effective solutions. This integrative process can be represented diagrammatically as follows:



With a carefully devised beginning, a growing body of information, and conscious control at all times, this mode of rationality becomes far more than muddling through

[17] Ibid., p. 140.
[18] See Wheaton, 1967, p. 28.
[19] See Alden and Morgan, 1974, p. 173.
[20] See Diesing, 1962, p. 76.



Rather, it incorporates land-use decisions with the ongoing integrative processes of a society and sidesteps disintegrating conflicts over goals and values.

This approach clearly takes tim Integrative design processes spread out decisions over long periods. We have probably all observed that the larger land-use issues usually take years, or even decades, for resolution as, one decision at a time, the integrative path is blazed. So long in term and so diffuse is the process that when a resolution finally occurs, we hardly notice it. In retrospect, it may seem as if the issues had simply melted away.

Political Rationality

Long-term though they may be, integrative methods, like the first three types, deal with only one issue or set of issues at a time. In a large, complex society, where a great many land-use issues are being dealt with at any one time, inequities and imbalances are likely to result unless these issues are guided by a common decision-making structure. And this is where political rationality enters in.

Political decisions are concerned with devising, preserving, and improving decision-making structures. Political rationality deals with "the organization of thought itself, the system of communications within which particular habits of thought are applied to materials to result in decisions."[21]

There are a great many different structures available for decisions concerning land use. In the United States, most planning decisions for privately owned lands are theoretically made by planning commissions, but the practical reality is much more complex. The movement toward public participation has tended to give private citizens a greater voice, and the technical complexity of questions concerning environmental impact have given technical specialists in staff positions decisive roles. In government agencies, similar changes have been occurring to spread the decision-making power. In general, there seems to be a long-term trend away from rigid hierarchical structures for land-use decisions and toward a more flexible organization with a leadership that shifts from one member or group to another according to the issues at hand. As a result, individual expertise is being put to better use.

Political rationality is applicable to landscape design primarily at the regional and larger scales, where design is an ongoing process without a definite beginning or end. The landscape and the structure for making decisions concerning it are being continually designed and redesigned. When it eventually comes about, design at the global level will probably be the ultimate example of political rationality in practice. Since at these larger levels, design processes and decision-making structures are inseparable, we need to understand something about the decision-making structures.

According to Diesing, a decision-making structure is composed of three basic elements:

1. Discussion relationships, which facilitate communications among members of the decision-making group, which at these levels is often very large
2. A set of beliefs and values, held more or less in common
3. Ongoing commitments and accepted courses of action

In addition to these three, a fourth element essential to decision-making structures for environmental issues is an information base. As we have seen, decisions concerning land use, if they are to have any meaning, must be informed by an understanding of the ecological processes involved. Simple data, moreover, are not enough. The information base needs to be interpreted so that reliable predictions concerning the effects of alternative plans can be made. Prediction of effects is the very core of design, especially at the larger scales. Decisions rest primarily on assessments of the future results of our actions.

This need requires a means of manipulating the information base—which we have called the Geographic Information System—to produce predictive models. Thus, for our present purposes, to Diesing's three elements of a decision-making structure, we will add one more:

4. A Geographic Information System to predict results of proposed actions

The process that a decision-making structure goes through for each of its decisions is essentially the design process. In Whitehead's sequence, Romance—Precision—Generalization, the information system provides the vehicle for the Stage of Precision.

ESSENTIAL THEMES

Looking back now at these rational processes, we find that, although they provide the logical coherence the complex issues of our age demand, they have a certain aura of make-believe. Anyone who has carried through a design process, even following the most rigorously rational paradigm, knows that the human mind does not actually work that way, and when it tries to force itself to do so, the results are uninspired. Although we need a rational framework for all the reasons discussed earlier, these rational processes all fail to account for the actual workings of the human mind. All imply linear

[21] Ibid., p. 170.

sequences of left-brain activity, whereas in reality, if appropriately complex and creative solutions are to emerge, the left and right sides should be working together in ongoing rhythms of the sort discussed earlier. While these rhythms are necessarily irregular and unpredictable, it is important to recognize as essential to the processes of design at least the larger sequence of shifting attitudes and modes of thought represented by Whitehead's Stages of Learning.

Although the specific steps described by the rational paradigms are all somewhat different, all of them embrace certain underlying themes, or broad subjects, that together provide direction. As in a symphony, each theme emerges from the fading chords of the one before it, guides the activity for a time, is explored in depth and detail with variations, and gives way to the theme that follows. Later, in all likelihood it will return, perhaps again and again. We can view each of these basic themes as having a definite place within one of Whitehead's stages and thus arrive at a general frame on which we might mount virtually any process of design.

Whitehead's Romantic Stage finds no real counterpart in the rational paradigms, which are usually described as beginning with problems, issues, or goals. These are important parts of the beginning stage, of course, but there are a great many others. During this stage, we lay the foundations for all the work that follows, describing methods, identifying participants, getting to know the land and the issues. Perhaps most important, it is then that we tune our minds and senses to the effort. This first stage of "romance" is a major part of the design process, one that takes time and shows few concrete results but that needs to be recognized. Grouping all these activities together, we will call this theme *inception*.

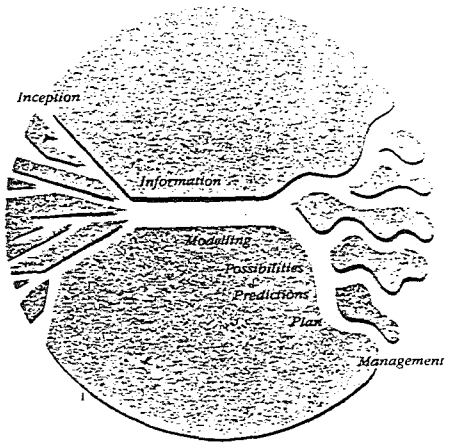
The next of Whitehead's stages, the Stage of Precision, is given little attention in most descriptions of rational process, which is a strange omission when we consider that for most larger-scale design efforts, this stage takes more time and research than the other two combined. In the "standard" design process described earlier, it takes half of the four steps: research and analysis. Research in this context refers to the gathering of information, and analysis is finding out what the information means for design purposes. Since this is a somewhat misleading use of the term "research," I will use instead *information*—becoming informed—and let this theme include the gathering and assembling of the needed facts. And instead of using the term "analysis," I will let the next theme, *models*, include analyzing the facts and organizing them into useful abstract representations of reality. Using the term in the broad sense described earlier, models are powerful tools for design, and all the more powerful if we think of them as conceptual constructions that we can study, reshape, and test as stand-ins for reality.

The Stage of Generalization is represented in the rational paradigm as consisting of three steps: the development of alternatives, the comparative evaluation of alternatives, and the selection of one, or some combination of two or more, as the plan. We have discussed the enormous importance of the search for possibilities. That search is an essential part of any design process, and the possibilities may be considered in any number of ways; they may or may not be then assembled into formal alternatives. We will therefore call this theme the search for *possibilities*.

In the Stage of Generalization, the cycle of creative and analytical phases emerges clearly; once we have posed possibilities, we will have to evaluate them analytically to find the best course of action among them. So the next theme, as in the rational paradigm, is comparative evaluation, evaluation based on *predictions* of performance. And from the predictions, if all goes as it should, a direction emerges, and we follow it in developing a *plan*, which might take any number of different forms and formats.

Once we have a plan, there remains the task of putting it into operation, which in the rational paradigm is usually called "implementation." At this point, the effort emerges from the Stage of Generalization into a new cycle of action and feedback—proposal and disposal—that we can best regard as an extension of design, or as a process of continuous redesign. This theme deserves the larger term of *management*.

These seven themes are—or should be—incorporated in most landscape design efforts, though with varying degrees of relative importance assigned to each. At this point, we can merge them with Whitehead's three stages to present a picture that, diagrammatically, looks like this:



Although a rational design process usually requires all of these stages and themes, they do not necessarily have to occur in this sequence. Sometimes they are considerably separated in time. A Geographic Information System, for example, represents the Stage of Precision—information and modeling—carried out before the other stages. And themes can occur within themes. Management often involves continuous reiteration of the entire design process.

The next three chapters will be devoted to an exploration of the three stages and the themes within each stage.

APPENDIX C

Comprehension Tests

1. MGMT 206
2. RECN 201
3. LASC 209

MGMT 206 1990

READING ASSIGNMENT

Subject Matter :TORNOW, W R (1988) 'Contract redesign', *Personnel Administrator*, October, 97-101.
There are two questions. Use both sides of this page please.
VALUE : 5 % OF SUBJECT MARKS
TIME ALLOWED : 20 minutes

1. What can be learnt from this article ?

2. What is meant by the 'psychological contract' ?

RECN 201 : LEISURE THEORY

CLASS TEST : AUGUST 1

(This short answer test is worth 10% of the overall grade).

Please answer Question 1 and any 2 of Questions 2 - 5.

You are allowed 10 minutes for Question 1,
at which time your answer paper will be collected.

You are then allowed 10 minutes to complete the other 2 questions

QUESTION 2

From your understanding of the article, which "theory" of leisure does Roberts find most convincing and what are his reasons for preferring this particular theory?

QUESTION 3

What argument(s) does Roberts make about the state in support of his preferred theory?

QUESTION 4

What argument(s) does Roberts make about "consumer sovereignty" in support of his preferred theory?

QUESTION 5

In his discussion of "socio-cultural pluralism" what are the arguments and evidence Roberts uses to judge the worth of social class explanations of leisure behaviour and leisure provision?

QUESTION 1

N.B. This was shown on an overhead projector.

What have you learnt from the article by Roberts?

NAME _____

LASC 209

Landscape Awareness

READING TEST

Instructions

Answer both questions in the space provided.
Time allowed: 20 minutes.

QUESTION ONE

What is the chapter from Lyle about ?

QUESTION TWO

How has your understanding of the design process been affected by reading this chapter ?

APPENDIX D

Post Reading Questionnaires.

1. MGMT 206
2. RECN 201
3. LASC 209

STUDENT PROFILE

NAME

AGE	< 20	21-30	31-40	41-50	51-60	61+

GENDER

Male	
Female	

ETHNIC ORIGIN

- ☐ Maori
- ☐ Pakeha / Caucasian
- ☐ Polynesian
- ☐ Melanesian
- ☐ Asian
- ☐ Other (State) _____

NO. OF YEARS OF FULL-TIME TERTIARY STUDY (excluding this year) ☐

NO. OF YEARS OF PART-TIME TERTIARY STUDY (excluding this year) ☐

REASONS FOR TAKING CURRENT PROGRAMME OF STUDY AT LINCOLN UNIVERSITY:

_____

_____

_____

PTO

Students at all stages in their education are required to learn yet they do not hold the same concept of what constitutes learning. Each concept is however equally valid.

WHAT DO YOU MEAN BY "LEARNING"?

_____

_____

_____

_____

_____

AS A LEARNER, HOW WOULD YOU DESCRIBE YOURSELF ?

_____

_____

_____

APPROACHES TO LEARNING FROM TEXT
QUESTIONNAIRE

INSTRUCTIONS

* Answer all questions in the spaces provided.
* Where written answers are provided please give as much detail as possible.
* There are no correct answers.
* Where problems are encountered outline these problems in the comments section at the end of the questionnaire.

QUESTIONS

1. WHAT DID YOU DO TO PREPARE FOR THE TEST YOU HAVE JUST FINISHED ?

Tick those activities in the list below that you undertook as part of your preparation for today's test. Tick as many boxes as are appropriate.

- [ ] Made a study plan.
- [ ] Skim read the whole article.
- [ ] Read the whole article in depth.
- [ ] Read the article over several times in depth.
- [ ] Highlighted key sentences in the text.
- [ ] Wrote down ideas that came to mind on the article.
- [ ] Wrote down important sentences word for word.
- [ ] Read section by section making summary notes.
- [ ] Tried to visualize each page.
- [ ] Identified the main ideas.
- [ ] Drew diagrams and flow charts to show relationships.
- [ ] Attempted to identify the author's intention.
- [ ] Tried to memorize all the facts.
- [ ] Tried to isolate the main ideas and memorize them.
- [ ] Discussed the article with friends.
- [ ] Tried to guess what the lecturer would ask about.
- [ ] Read a section and asked myself questions about it.
- [ ] Thought about the implications of what I was reading.
- [ ] Tried to link the reading to the rest of the course.
- [ ] Condensed my notes down to a simple summary.
- [ ] Read a section and then rewrote it.
- [ ] Learnt the concluding sections off by heart.
- [ ] Tried to understand the article's central argument.

N.B. You may have undertaken a number of activities that do not appear on this list. See question two

Question One was designed to assist you to recall what you did during your preparation for today's test.

2. LIST IN ORDER THE THINGS YOU DID AS YOU STUDIED THE SET READING.

Include details on how you undertook each task Include any tasks not mentioned in question one.

3. APPROXIMATELY HOW MUCH TIME DID YOU SPEND STUDYING FOR THIS TEST ? ☐ hours

4. WHY DID YOU USE THE APPROACH YOU OUTLINED IN YOUR ANSWER TO QUESTION TWO ?

5. People try to achieve different things when they read an article.
WHAT WERE YOU TRYING TO ACHIEVE AS YOU STUDIED THE SET READING ?

6. HOW WOULD YOU RATE THE DIFFICULTY OF THE SET READING ?

very difficult ⌊_____⌋ easy

7. HOW WELL DO YOU THINK YOU DID IN THE TEST ?

very well ⌊_____⌋ poorly

EXPLAIN YOUR ANSWER:

8. HOW MOTIVATED WERE YOU AS YOU STUDIED FOR THE TEST ?

very motivated ⌊_____⌋ not motivated

EXPLAIN YOUR ANSWER:

9. DID THE TEST MATCH YOUR EXPECTATIONS ?

yes ☐ no ☐

EXPLAIN YOUR ANSWER:

10. PLEASE COMMENT ON ANY QUESTIONS YOU FOUND DIFFICULT TO ANSWER IN THIS QUESTIONNAIRE.

Thank you.

C. E. Mills.

1990.

STUDENT PROFILE

NAME _____

AGE ☐

STUDY SKILLS GUIDANCE

Please outline the type, nature and duration of any study skills advice or tuition you have received. If you have not received any please write NONE. If you can only recall receiving instruction of an incidental or highly task specific nature that has been of little assistance in your tertiary studies please write INSIGNIFICANT.

_____
_____
_____
_____
_____
_____
_____
_____
_____

READING HISTORY

How would you describe yourself as a reader?

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Do you read for recreation?
Tick the most accurate description of your behaviour.

- ☐ Never
- ☐ Only occasionally
- ☐ Regularly but not a lot.
- ☐ Regularly and quite a lot.

Is this by choice?

Yes ☐ No ☐

Explain

_____
_____
_____

If you answered "only occasionally", "regularly but not a lot" or "regularly and quite a lot" please outline what you tend to read. Put the types of things you read in order of volume.

I most often read _____
_____
_____
_____
_____
_____
_____
_____

APPROACHES TO LEARNING FROM TEXT QUESTIONNAIRE

INSTRUCTIONS

* Answer all questions in the spaces provided.
* Where written answers are required please give as much detail as possible.
* There are no incorrect answers.
* Responses are confidential.

QUESTIONS

1. What did you do to prepare for the test you have just finished ? Be as specific as you can. List the things you did in the order that you did them.

2. Approximately how much time did you spend studying for this test ?

   ☐ hours

3. Was your approach the same as you would use for similar tests in other subjects ?

   yes ☐ no ☐

   Explain your answer.

4. As you read through the required reading what were you trying to achieve ?

5. Was this any different from what you were trying to achieve when you studied for the test on Psychological Contracts ?

   yes ☐ no ☐

   Explain your answer.

6. Did any aspect of last week's test on Psychological Contracts or the research questionnaire influence your preparation for today's test ?

yes ☐ no ☐

Explain your answer.

_____
_____
_____
_____
_____
_____

7. Did today's test match your expectations ?

yes ☐ no ☐

Explain your answer.

_____
_____

8. How well do you think you did in the test ?

very well_____poorly

9. How would you rate the difficulty of the set reading ?

very difficult_____easy

10. How motivated were you as you studied for the test ?

very motivated_____not motivated

STUDENT PROFILE

NAME ☐

ENTRY QUALIFICATIONS

Tick the boxes alongside those qualifications you held at the beginning of your current course.

- ☐ Three years secondary education
- ☐ School Certificate in ____ subjects. (State number).
- ☐ University Entrance in ____ subjects.
- ☐ Sixth Form Certificate in ____ subjects.
- ☐ Seventh Form Certificate in ____ subjects.

List any incomplete tertiary qualifications. (ie. Certificates, diplomas and degrees in which you have successfully completed at least one course). Please include any courses undertaken through private education providers. State the portion of the qualification you have completed as a % of the total course.

_____
_____
_____
_____
_____
_____

List any completed tertiary qualifications.

_____
_____
_____
_____

PERSONAL DEVELOPMENT

Do you believe your effectiveness as a learner has improved since leaving school ?

yes ☐ no ☐ unsure ☐

Explain your answer.

_____
_____
_____
_____
_____

TERTIARY EXPECTATIONS

Has study at Lincoln University matched your expectations of tertiary learning ?

yes ☐ no ☐

Explain your answer.

_____
_____
_____
_____
_____
_____
_____
_____

APPROACHES TO LEARNING FROM TEXT QUESTIONNAIRE

INSTRUCTIONS

* Answer all questions in the spaces provided.
* Where written answers are required please give as much detail as possible.
* There are no incorrect answers.
* Responses are confidential.

QUESTIONS

1. What did you do to prepare for the test you have just finished ? Be as specific as you can. List the things you did in the order that you did them.

2. Approximately how much time did you spend studying for this test ?

   ☐ hours

3. Was your approach the same as you would use for similar tests in other subjects ?

   yes ☐ no ☐

   Explain your answer.

4. How would you rate the difficulty of the set reading ?

   very difficult_____easy

5. As you read through the required reading what were you trying to achieve ?

6. Was this any different from what you were trying to achieve when you studied for the last two reading tests ?

   yes ☐ no ☐

   Explain your answer.

7. Has any aspect of preparing for or sitting the two recent reading tests influenced the way you prepared for today's test?

yes ☐ no ☐

Explain your answer.

8. Did the Learning Approach questionnaires influence the manner in which you approached today's test ?

yes ☐ no ☐

Explain your answer.

9. Describe the sort of test you expected today ?

10. Why did you expect this sort of test ?

11. How well do you think you did in the test ?

very well ____ ____ ____ ____ poorly

Explain your answer.

12. How motivated were you as you studied for this test ?

very motivated ____ ____ ____ ____ not motivated

Explain your answer.

Many thanks for participating in this study.
Colleen Mills.
1990.

APPENDIX E

Questionnaire Four

1. Personal Detail Questions.
2. Approaches to Studying Inventory.
3. Ramsden, P. (1983). The Lancaster Approaches to Studying and Course Perceptions Questionnaire, Oxford: Paul Ramsden and Educational Methods Unit, Oxford Polytechnic.

APPROACHES TO STUDYING.

NAME _____

HIGHEST SECONDARY SCHOOL QUALIFICATION

Please indicate by ticking the appropriate box which of the following qualifications is your highest secondary school qualification. Tick only ONE box.

- ☐ Three years secondary school.

School Certificate in:

- ☐ 1 subject
- ☐ 2 subjects
- ☐ 3 subjects
- ☐ 4 subjects
- ☐ 5 subjects
- ☐ 6 subjects
- ☐ more than 6 subjects

Sixth Form Certificate in: (NB. U.E. is higher).

- ☐ 1 subject
- ☐ 2 subjects
- ☐ 3 subjects
- ☐ 4 subjects
- ☐ 5 subjects
- ☐ 6 subjects

University Entrance

- ☐ 1 subject
- ☐ 2 subjects
- ☐ 3 subjects
- ☐ 4 subjects
- ☐ 5 subjects
- ☐ 6 subjects

Seventh Form Certificate. (NB. Bursary is higher).

- ☐ 3 subjects
- ☐ 4 subjects
- ☐ 5 subjects

University Bursary:

- ☐ B bursary
- ☐ A bursary

University Scholarship

- ☐

SOCIO ECONOMIC GROUP

Please state the occupational group of your primary caregivers:

Female Male

SECTION B

Approaches to Studying

In this section we would like you to show whether you agree or disagree with each of the statements listed below. We are concerned here with your approaches to studying in general. If your answer would be different for different subjects, however, you should reply in relation to your main course or subject.

Please circle the number beside each statement which best conforms with your view.

4 (✓✓) means Definitely agree

3 (✓) means Agree with reservations

1 (x) means Disagree with reservations

0 (xx) means Definitely disagree

2 (?) is only to be used if the item doesn't apply to you or if you find it impossible to give a definite answer.

		✓✓	✓	x	xx	?	
1.	I find it difficult to organise my study time effectively.	4	3	1	0	2	16
2.	I try to relate ideas in one subject to those in others, whenever possible	4	3	1	0	2	17
3.	Although I have a fairly good general idea of many things, my knowledge of the details is fairly weak.	4	3	1	0	2	18
4.	I enjoy competition: I find it stimulating.	4	3	1	0	2	19
5.	I usually set out to understand thoroughly the meaning of what I am asked to read.	4	3	1	0	2	20
6.	Ideas in books often set me off on long chains of thought of my own, only tenuously related to what I was reading.	4	3	1	0	2	21
7.	I chose my present courses mainly to give me a chance of a really good job afterwards.	4	3	1	0	2	22
8.	Continuing my education was something which happened to me, rather than something I really wanted for myself.	4	3	1	0	2	23

	✓✓	✓	x	xx	?	
9. I like to be told precisely what to do in essays or other assignments.	4	3	1	0	2	24
10. I often find myself questioning things that I hear in lectures or read in books.	4	3	1	0	2	25
11. I generally prefer to tackle each part of a topic or problem in order, working out one at a time.	4	3	1	0	2	26
12. The continual pressure of work—assignments, deadlines and competition—often makes me tense and depressed.	4	3	1	0	2	27
13. I find it difficult to "switch tracks" when working on a problem: I prefer to follow each line of thought as far as it will go.	4	3	1	0	2	28
14. My habit of putting off work leaves me with far too much to do at the end of term.	4	3	1	0	2	29
15. It's important to me to do really well in the courses here.	4	3	1	0	2	30
16. Lecturers seem to delight in making the simple truth unnecessarily complicated.	4	3	1	0	2	31
17. Distractions make it difficult for me to do much effective work in the evenings.	4	3	1	0	2	32
18. When I'm doing a piece of work, I try to bear in mind exactly what that particular lecturer seems to want.	4	3	1	0	2	33
19. I usually don't have time to think about the implications of what I have read.	4	3	1	0	2	34
20. Lecturers sometimes give indications of what is likely to come up in exams, so I look out for what may be hints.	4	3	1	0	2	35
21. In trying to understand a puzzling idea, I let my imagination wander freely to begin with, even if I don't seem to be much nearer a solution.	4	3	1	0	2	36
22. My main reason for being here is that it will help me to get a better job.	4	3	1	0	2	37
23. Often I find myself wondering whether the work I am doing here is really worthwhile.	4	3	1	0	2	38

	✓✓	✓	x	xx	?	
24. I generally put a lot of effort into trying to understand things which initially seem difficult.	4	3	1	0	2	39
25. I prefer courses to be clearly structured and highly organised.	4	3	1	0	2	40
26. A poor first answer in an exam makes me panic.	4	3	1	0	2	41
27. I prefer to follow well tried approaches to problems rather than anything too adventurous.	4	3	1	0	2	42
28. I'm rather slow at starting work in the evenings.	4	3	1	0	2	43
29. In trying to understand new ideas, I often try to relate them to real life situations to which they might apply.	4	3	1	0	2	44
30. When I'm reading I try to memorise important facts which may come in useful later.	4	3	1	0	2	45
31. I like to play around with ideas of my own even if they don't get me very far.	4	3	1	0	2	46
32. I generally choose courses more from the way they fit in with career plans than from my own interests.	4	3	1	0	2	47
33. I am usually cautious in drawing conclusions unless they are well supported by evidence.	4	3	1	0	2	48
34. When I'm tackling a new topic, I often ask myself questions about it which the new information should answer.	4	3	1	0	2	49
35. I suppose I am more interested in the qualifications I'll get than in the courses I'm taking.	4	3	1	0	2	50
36. Often I find I have to read things without having a chance to really understand them.	4	3	1	0	2	51
37. If conditions aren't right for me to study, I generally manage to do something to change them.	4	3	1	0	2	52
38. In reporting practical work, I like to try to work out several alternative ways of interpreting the findings.	4	3	1	0	2	53

	✓✓	✓	x	xx	?	
39. My main reason for being here is so that I can learn more about the subjects which really interest me.	4	3	1	0	2	54
40. In trying to understand new topics, I often explain them to myself in ways that other people don't seem to follow.	4	3	1	0	2	55
41. I find I have to concentrate on memorising a good deal of what we have to learn.	4	3	1	0	2	56
42. It is important to me to do things better than my friends, if I possibly can.	4	3	1	0	2	57
43. I find it better to start straight away with the details of a new topic and build up an overall picture in that way.	4	3	1	0	2	58
44. Often when I'm reading books, the ideas produce vivid images which sometimes take on a life of their own.	4	3	1	0	2	59
45. One way or another I manage to get hold of the books I need for studying.	4	3	1	0	2	60
46. I often get criticised for introducing irrelevant material into my essays or tutorials.	4	3	1	0	2	61
47. I find that studying academic topics can often be really exciting and gripping.	4	3	1	0	2	62
48. The best way for me to understand what technical terms mean is to remember the text-book definitions.	4	3	1	0	2	63
49. I certainly want to pass the next set of exams, but it doesn't really matter if I only just scrape through.	4	3	1	0	2	64
50. I need to read around a subject pretty widely before I'm ready to put my ideas down on paper.	4	3	1	0	2	65
51. Although I generally remember facts and details, I find it difficult to fit them together into an overall picture.	4	3	1	0	2	66
52. I tend to read very little beyond what's required for completing assignments.	4	3	1	0	2	67
53. Having to speak in tutorials is quite an ordeal for me.	4	3	1	0	2	68

	✓✓	✓	x	xx	?	
54. Puzzles or problems fascinate me, particularly where you have to work through the material to reach a logical conclusion.	4	3	1	0	2	69
55. I spend a good deal of my spare time in finding out more about interesting topics which have been discussed in classes.	4	3	1	0	2	70
56. I find it helpful to 'map out' a new topic for myself by seeing how the ideas fit together.	4	3	1	0	2	71
57. I seem to be a bit too ready to jump to conclusions without waiting for all the evidence.	4	3	1	0	2	72
58. I hate admitting defeat, even in trivial matters.	4	3	1	0	2	73
59. I think it is important to look at problems rationally and logically without making intuitive jumps.	4	3	1	0	2	74
60. I find I tend to remember things best if I concentrate on the order in which the lecturer presented them.	4	3	1	0	2	75
61. When I'm reading an article or research report, I generally examine the evidence carefully to decide whether the conclusion is justified.	4	3	1	0	2	76
62. Tutors seem to want me to be more adventurous in making use of my own ideas.	4	3	1	0	2	77
63. When I look back, I sometimes wonder why I ever decided to come here.	4	3	1	0	2	78
64. I find academic topics so interesting, I should like to continue with them after I finish this course.	4	3	1	0	2	79
					1	80

THE LANCASTER APPROACHES TO STUDYING AND COURSE PERCEPTIONS QUESTIONNAIRE

LECTURERS' HANDBOOK

Paul Ramsden

CONTENTS

INTRODUCTION

The approaches to studying questionnaire is an instrument for examining how students in higher education learn and how they experience their courses.

It was developed as a research questionnaire at Lancaster University, and used in a national survey of students' approaches to studying in U.K. universities and polytechnics. It has since been used with samples of Australian students and, in an adapted form, at the Open University.

The evidence from these research studies is that the questionnaire is a useful means of finding out how students learn. It is now offered as an aid to course evaluation, on the assumption that if teachers know more about their students' study patterns and experiences of courses, they will be in a better position to organise their teaching to ensure that students learn effectively.

There are two main parts to the questionnaire: the approaches to studying inventory (which deals with students' study methods) and the course perceptions questionnaire (which is concerned with their experiences of courses or departments). Throughout the handbook, for simplicity, we will refer to both parts together as "the approaches to studying questionnaire".

The questionnaire is not a conventional course evaluation questionanire. It does not provide information about whether students like or dislike their courses, or about how difficult or easy they think they are. Instead, the questionnaire tells us about how students deal with learning tasks and how they perceive the assessment and teaching methods they encounter. The questionnaire has a coherent conceptual basis which links together the aims of teachers in higher education, the learning context in which students study, and their academic performance.

This handbook is an introduction to the use of the questionnaire as an evaluation instrument. It outlines the development of the questionnaire, provides a brief background to the theory on which it is based, and presents some evidence for its reliability and validity. The meaning of each of the scales into which the questions are grouped is explained, and some ways of interpreting the results are suggested.

The handbook is essentially a guide to understanding what the findings of the questionnaire mean. As such, it does not pretend to be a complete manual for administering the questionnaire and processing the data. The results will, of course, only be useful if the questionnaire has been properly administered and analysed.

HOW WAS THE QUESTIONNAIRE DEVELOPED?

The questionnaire consists of:

1. Questions concerned with background information, such as the student's age, sex, previous education, and main courses.

2. An inventory of approaches to studying - a set of statements concerned with how students tackle everyday academic tasks.

3. A questionnaire of course perceptions - a set of statements dealing with the student's experience of assessment, teaching, and curriculum in his or her main department or courses.

4. An open-ended section where students can add further comments.

Parts two and three are the main sections of the questionnaire.

The **inventory of approaches to studying** was developed in an attempt to understand students' approaches to learning in higher education. The questions were derived from a number of sources. Some of them came from earlier research at Lancaster, where an inventory had been developed to help predict academic performance in higher education (see Entwistle & Wilson, 1977). Additional statements were written based on Ference Marton's descriptions of different approaches to reading academic articles and Gordon Pask's work on different styles of learning (see Entwistle & Hounsell, 1975, for a summary of these ideas). These concepts of differing styles and approaches to studying have been shown to be particularly relevant to student learning in higher education. Additional questions which emerged from a series of interviews with students at Lancaster, concerned with how they approached a variety of learning tasks such as essay writing, examination preparation, and reading, were also included in the inventory.

The first version of the inventory contained 120 questions. Standard item analysis procedures* were used to explore the statistical relationships between the questions and the statements were also subjected to careful scrutiny by a number of researchers to see how closely they mirrored the theoretical ideas found in the literature on student learning.

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* Item analysis is the use of statistical techniques to select the best questions and eliminate the poor ones, and to group together questions which are answered in similar ways.

It was soon clear that the major groupings of questions found in the inventory included:

1. Organised, motivated study methods;

2. The student's intention to try and understand and to relate academic work to his or her own experience;

3. A strategy of learning by memorising.

At this stage the results were compared with those from another questionnaire being developed independently by John Biggs in Australia (see Biggs, 1979). The similarities in the patterns of results were striking and the next pilot inventory included extra items from Biggs's questionnaire. Again the inventory was tested, this time with students from two universities in five subject areas. The final research version of the inventory was developed by reviewing the results from each of the preliminary studies in relation to the continuing programme of student interviews. The number of statements in each of the groups of questions was reduced in order to create a manageable total length for the whole questionnaire.

The **course perceptions questionnaire** is the other principal part of the complete approaches to studying questionnaire.

This questionnaire was developed as a way of measuring students' perceptions of the learning context - the teaching, assessment, and courses - in academic departments. Preliminary work in the Lancaster programme of research suggested that students in different subject areas used similar ways of describing their courses and the teaching they experienced. The statements in the first version of the course perceptions questionnaire were derived from student interviews and from an earlier study of students' course perceptions (see Entwistle & Ramsden, 1983).

The pilot questionnaire was given to students in six departments in 1978. Once again, item analysis supported by conceptual analysis by a number of researchers was used to examine the relationships between the questions and to refine the groupings of questions. The main groups made good sense in relation to previous work on students' evaluations and descriptions of teaching in higher education. They included:

1. Students' perceptions of the quality and effectiveness of teaching;

2. The pressure of assessment and amount of syllabus content;

3. Formality or informality of teaching methods;

4. How much choice students felt they could exercise over what and how they studied;

5. How relevant they thought the courses were to future employment;

6. How clearly the standards expected of them were defined by the staff.

The course perceptions questionnaire was further improved after a second pilot version had been used with 767 students at two universities. It was shortened to 40 questions in 8 groups, each of which could be defended conceptually and empirically.

Further details of how the approaches to studying inventory and course perceptions questionaire were developed can be found in Entwistle & Ramsden (1983) and Ramsden & Entwistle (1981). These provide more technical descriptions of how the subscales were put together and tested, and give a detailed statistical justification for their usefulness.

WHAT DO THE SCALES AND SUBSCALES MEAN?

The questions in the approaches to studying questionnaire are not in any particular order. But they can be grouped together to form what are known as subscales and scales* when the results are analysed. The answers to groups of questions are much more stable and reliable than the answers to individual questions.

Every student has a "score" on each of the groups of questions. This is simply the result of adding together the numbers that the student circled when he or she replied to the questions making up the subscale or scale. Classes, courses, and departments have average scores on the scales and subscales - the sum of the individual scores divided by the total number of students in the class.

A brief explanation of the meaning of each of the subscales and scales is given below.

APPROACHES TO STUDYING

Deep approach	High scores indicate that students are looking for meaning in their studying, interacting actively with what is being learnt, and linking what they are studying with real life
Use of evidence	High scores indicate that students are examining evidence critically and using it cautiously
Relating ideas	High scores show that students are actively relating new information to previous knowledge
Intrinsic motivation	High scores mean that students are interested in what they are learning for its own sake
Meaning orientation	A composite scale including all four subscales listed above. Also referred to as "deep approach to studying". High scores indicate that students intend to understand what is being studied
Surface approach	High scores show that students are relying on rote learning
Syllabus-boundness	High scores indicate an intention to restrict learning to the defined syllabus and specific tasks
Fear of failure	High scores indicate that students lack self-confidence and are anxiously aware of assessment requirements
Improvidence	High scores mean that students are not prepared to look for relationships between ideas and are fact-bound
Reproducing orientation	A composite scale made up of the four subscales listed above. High scores indicate that students intend to reproduce what they are studying. Also referred to as "surface approach to studying"
Extrinsic motivation	High scores mean that students see qualifications as the main source of motivation for learning
Strategic approach	High scores show that students are actively seeking information about assessment requirements and trying to impress staff
Achievement motivation	High scores indicate competitive and self-confident students, driven by hope for success

* A subscale is a grouping of questions;
a scale is a grouping of subscales - a "higher order" grouping of questions.

Strategic orientation	A composite scale made up of the three subscales listed above. High scores indicate that students are studying to gain qualifications for employment and see this task as a game which they must win
Comprehension learning	High scores show that students use illustrations, analogies and intuition to build up a general picture of what they are learning
Operation learning	High scores indicate that students concentrate on details and logical analysis
Disorganised study methods	Low scores show that students report they are organising their time effectively and planning ahead
Negative attitudes	High scores mean that students have little involvement with their work and are cynical and disenchanted about higher education
Globetrotting	High scores indicate that students are over-ready to generalise and jump to conclusions without evidence
Non-academic orientation	A composite scale made up of the three subscales above. High scores indicate that students have little concern for academic requirements and are experiencing study difficulties linked to poor academic performance.

COURSE PERCEPTIONS

Good teaching	High scores indicate that students think staff are well-prepared and confident teachers who help them with study problems
Freedom in learning	High scores mean that students think the courses offer a high degree of choice over what is to be studied and how it is to be learnt
Workload	High scores show that students feel themselves to be under excessive pressure from the demands of the curriculum and the assessment methods
Openness to students	High scores show that staff are thought to be friendly and are prepared to adapt themselves to student needs
Social climate	High scores mean that students report good academic and social relationships between themselves
Formal teaching methods	Low scores mean that students think individual study is more important than timetabled classes in these courses
Clear goals and standards	High scores show that the standards of assessment and the ends of studying are thought to be clearly defined
Vocational relevance	High scores show that the courses are thought to be relevant to students' future careers
Student-centredness	A composite scale made up of the Freedom in Learning and Good teaching subscales. High scores indicate that students feel the courses and teaching are presented in an effective way
Control-centredness	A composite scale consisting of the Workload subscale score minus the Freedom in Learning score (plus a constant (10) to make all the scores positive numbers). Low scores indicate perceived choice and reasonable pressure; high scores indicate highly restricted choice and heavy demands on students

WHAT DO THE RESULTS TELL US?

The questionnaire provides information about how students typically tackle academic tasks in relation to the academic environment they perceive themselves to be working in. The results only have validity as students' self-reports of their approaches to studying and perceptions of teaching and assessment. As explained below, there are important connections between students' **approaches**, students' **perceptions**, and the effectiveness of student **learning**. These links mean that the results have direct implications for course design.

There are two main dimensions ("global" groupings of questions) that appear consistently in analyses of the approaches to studying section of the questionnaire. These have been labelled **MEANING ORIENTATION** and **REPRODUCING ORIENTATION.**

Essentially these scales identify students' intentions to try to understand what they are learning or to try to memorise facts and ideas for later reproduction (in an examination or essay, for example). The meaning orientation is clearly related to one of the important aims that lecturers in all subject areas have for their students - the development of "critical thinking". It involves using evidence effectively, an interest in the subject matter for its own sake, an active and critical interaction with what is being learnt, and the relating of academic knowledge to personal experience and "real life". The reproducing orientation, in contrast, is evidently <u>not</u> what lecturers would want from their students. It suggests a narrow approach to studying in which students are anxiously overconcerned with assessment demands and are unable or unwilling to see the wider implications of what they are learning. The two orientations are similar to distinctively different approaches to reading academic articles - deep and surface approaches - identified originally in research at Gothenburg University in Sweden. Similar distinctions have since been identified in research into how students prepare essays, tackle examinations, and deal with scientific problems.

The deep approach leads to **better learning** in all subject areas, however "better" is defined - in terms of complexity or quality of understanding, satisfaction, self-rated performance in comparison with other students, long-term recall of factual material, degree results, course grades, or examination results. American, Australian, Swedish, and British studies all point to this same conclusion.

There are two other main groupings of questions in the approaches to studying inventory. These are rather less clearly defined than the meaning and reproducing orientations and cannot be defended as strongly in statistical terms. The **NON-ACADEMIC ORIENTATION** distinguishes students who say they have disorganised study methods, who tend to jump to conclusions on the basis of inadequate evidence, and who have negative attitudes towards the courses they are taking and towards studying in general ("I sometimes wonder why I ever came here"). Not suprisingly, students scoring highly on this orientation tend to get poor grades.

The fourth main dimension is the **STRATEGIC ORIENTATION.** Students scoring highly on this scale are trying to do well in their courses so that they can get a qualification, and are very competitive.

The relationships between the four main orientations and students' academic progress are summarised in Table 1 for a sample of 2,000 British students. These relationships are between study approaches and self-rated progress in the second year; the associatons between study approaches and actual degree results are currently being analysed. From the table, we note that:

- meaning orientation is consistently associated with progress;
- reproducing orientation is consistently (but <u>negatively</u>) associated with progress;
- the non-academic orientation is consistently (but <u>negatively</u>) associated with progress;
- the strategic orientation is consistently associated with progress.

The table also gives the relationships between the subscales and academic progress.

To repeat: these findings are based on self-ratings of academic performance. However, similar relationships have been identified between students' approaches to learning and either academic grades or quality of understanding in other studies. Several of these studies have used this questionnaire or variants of it.

Let us now look at the results of the course perceptions section of the questionnaire. This divides into 8 subscales, and the scores on each of them provide information about how students experience the teaching and assessment in a course or department. It is possible to tell, for example, how a group of students perceives the formality or informality of the teaching methods used in comparison with other courses in the same or a related subject area. Three of the subscales deserve special attention as they represent aspects of the learning context which are empirically and conceptually related to students' approaches to studying. These are the subscales of workload, good teaching, and freedom in learning.

Learning experiments carried out in Sweden, and interview studies of students in Australia and the U.K., have identified important relationships between students' approaches to learning and their perceptions of academic demands. Students' perceptions of a threatening assessment context, of a lack of opportunity to pursue particular subjects in depth, and of an excessive amount of curicular material, are related to students' use of surface approaches. A context of learning with these characteristics alerts students to the importance of "getting through" the tasks in the curriculum, and this then becomes their intention. In contrast, perceived good teaching and the existence of intrinsic interest in what is being studied are related to the use of deep approaches.

It follows from these findings that students may often use different approaches in different subject areas, depending on their perceived utility. Not only "weak" students use surface approaches. The connections between learning contexts and approaches to studying were clearly demonstrated in the British survey of 2208 students in 66 departments. Departments perceived to have a heavy workload combined with lack of choice over content and method of study were more likely to have students scoring highly on the reproducing orientation. Departments thought to have good teaching and freedom in learning were more likely to have - but did not <u>necessarily</u> have - students scoring highly on the meaning orientation. These relationships were not affected by the type of subject or by students' 'A' level grades in the different departments. These relationships are statistical but the experimental and interview evidence points clearly to the conclusion that they are causal. Of course, the teaching and

TABLE 1 SUMMARY OF RELATIONSHIPS BETWEEN APPROACHES TO STUDYING AND SELF-RATED ACADEMIC PROGRESS

	Arts students (N= 491)	Social science students(852)	Science students (865)
Main scales			
Meaning orientation	++	++	++
Reproducing orientation	—	-	—
Non-academic orientation	—	—	—
Strategic orientation	+	+	+
Subscales			
Deep approach	++	++	++
Use of evidence	+	+	+
Relating ideas	+	++	+
Intrinsic motivation	++	++	++
Surface approach	—	-	—
Syllabus-boundness	—	—	-
Fear of failure	—	-	-
Improvidence	—	-	—
Disorganised study methods	—	—	—
Negative attitudes to studying	—	—	—
Globetrotting	-	—	—
Extrinsic motivation	-	-	0
Strategic approach	+	++	++
Achievement motivation	+	++	++
Comprehension learning	+	0	0
Operation learning	-	0	0

Key

+	positive relationship
++	strong positive relationship
-	negative relationship
—	strong negative relationship
0	no statistically significant relationship

assessment is only one of the factors involved in whether a student uses a deep or a surface approach, but it is one over which teachers usually have direct control.

It is of interest to note, when interpreting the results, that neither the non-academic or the strategic orientations were related to students' perceptions of teaching and assessment. If students score highly on the first of these dimensions, then it probably indicates a need for special help with learning skills for the students in a particular programme - help which is probably best provided by teaching staff.

The results of each of the subscales in both main parts of the questionnaire yield a wealth of information about students' approaches and perceptions of teaching which is of potential value in planning courses. It is not possible to discuss all the implications of the results here. Users of this handbook might like to consult one of the main reports listed on page 26 for fuller details of the background to the subscales.

IS IT VALID AND RELIABLE?

We can be reasonably confident that the questionnaire is really measuring what we want it to measure and that its results are consistent.

1. The questionnaire items are all derived directly from the experiences of students in the natural setting of academic courses in higher education. Each question, each subscale, and each scale is clearly understandable in terms of what lecturers and students do. Each of the subscales also has theoretical support of some kind.

2. When the questionnaire has been completed by students in different subject areas (e.g. engineering, English literature, psychology), the subscales have turned out to be grouped together in a similar way. Hence we can argue that the questionnaire is equally applicable to students studying different disciplines.

3. Nevertheless, the scales and subscales clearly discriminate between individual students and groups of students. For example, the 66 departments in the large survey produced a wide spread of different scores, and the questionnaire is capable of identifying extreme types of students in terms of their reported approaches to studying (see 6 below).

4. When the questionnaire is used with students in different countries and in different types of institution, similar relationships between the subscales are found. It has been used with 2000 students enrolled in six different discipline areas in U.K. polytechnics and universities, with Open University science and social science students, and with Australian arts, science, and social science students. Comparable findings have also emerged from a shortened version of the inventory specially developed for use in schools.

5. A related instrument, developed independently in Australia, had produced dimensions of approaches to studying very similar to the meaning and reproducing orientations in this questionnaire.

6. There is a close relationship between the results obtained from the questionnaire and the results of student interviews. Interviews of students in the Lancaster study confirmed the departmental differences identified by the course perceptions questionnaire. Interviews of Australian students who had completed the inventory, and who were then chosen to represent extreme scores on the meaning and reproducing orientation scales, have been carried out. The results showed a high level of agreement between the inventory and interview classifications, even though the judges who classified the interview transcripts were unaware of the inventory scores.

7. As we have already seen, the scales and subscales of the inventory are related to several measures of learning outcomes (e.g. assessment grades, degree results, independently assessed measures of learning quality) in a consistent way.

8. Cronbach alpha values - which are accepted indices of the internal consistency of groupings of questionnaire items - are given in the list of items, scales and subscales (pp 19 - 25). Although some of the values for the subscales in the approaches to studying section are rather low, the values for the course perceptions subscales and for the main domains in both sections are satisfactory.

AN EXAMPLE OF HOW TO INTERPRET THE RESULTS

The formidable-looking Table 2 shows the average values for each of the subscales and for the composite scales. The means and ranges (highest and lowest scores) are shown for six different subject areas and derive from the survey of 2208 U.K. students in 66 academic departments*. Results from other subject areas will be added to the table when they become available, but for the time being it is necessary to compare your own course or department with the subject area that seems to be closest to it. For example, results from a sociology course might legitimately be compared with the psychology departments' average scores.

Table 3 gives an example of pattern of scores. On the left hand side are the subscale and scale titles (Deep approach, Relating ideas, and so on). In the second column are the scores from the department or course being examined, and in the third are the average scores for all departments in that subject area in the large survey. The final column shows the range of scores that were obtained for the departments in the large survey.

In this case the results are very clear. Looking first at the composite scale scores, we see that this department has a very low score on meaning orientation - well below the mean, and at the bottom of the range of scores. The reproducing orientation score, on the other hand, is high, and so is the non-academic orientation score. In comparison with other psychology departments, this one has students who report an intention to reproduce and memorise rather than to try and understand what they are learning. They also have considerable learning difficulties and generally poor attitudes towards studying. For more detailed evidence, we can look at the subscale scores in relation to the other psychology departments. The students report low interest in what they are studying, a strong tendency to memorise what is being learnt, an anxious awareness of assessment requirements, an over concentration on detail, failure to organise their time well, a tendency to jump to conclusions on scanty evidence, and a general disillusionment with higher education.

This gloomy picture is complemented by the students' perceptions of the courses they are offered. The teaching is thought to be poor, the workload is above average, and there is thought to be little choice over content and method of studying.

We know from the research evidence referred to earlier that perceived good teaching and freedom in learning are related to deep approaches - students are more likely to try to impose meaning and structure on what is being learnt if they have some degree of choice over content and learning method, and if they are exposed to effective teaching. We also know that there is a causal relationship between anxiety-provoking assessment methods and lack of interest, on the one hand, and surface approaches on the other.

In this department these relationships are shown statistically. Although we do not know that the learning context as perceived by students in these courses is affecting the approaches to studying they are using, the evidence from the previous research suggests that it is highly likely. The implication is that attention to the assessment methods, amount of syllabus content, and attitudes of the staff in the department would be beneficial to students' learning in it.

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* Appendix A gives standard deviations of the scores to enable interested users to make statistical comparisons.

We also know from the research that negative attitudes towards studying are related to perceived poor teaching, and again this relationship is borne out in the results from this department.

Of course, in most cases of administration of the questionnaire the results will be less clear-cut than in this example, and the implications for action will be correspondingly less obvious. The meaning of each of the scales and the questions that go to make them up should always be carefully studied in order to gain the best value from the results.

To summarise this section, the easiest way to interpret the results you obtain from a group of students is to compare your findings with the results from a corresponding subject area. Use Table 2 to make the comparison, and then consider what conclusions might be drawn for course design, learning skills, and teaching on your course.

TABLE 2 Means of Subscales and Ranges of Departmental Mean Scores by Discipline

Subscales and Scales	English Mean	English Range	History Mean	History Range	Psychology Mean	Psychology Range
Approaches to studying						
Deep Approach	11.2	10.2-12.7	11.3	10.4-12.0	10.8	9.9-12.4
Inter-relating Ideas	10.5	8.6-11.5	10.1	9.6-11.2	10.9	10.1-12.0
Use of Evidence	9.4	9.1- 9.6	9.5	8.9-10.6	9.6	8.5-11.0
Intrinsic Motivation	9.5	8.1-10.3	8.5	7.3- 9.6	9.3	7.3-10.9
Surface Approach	12.9	11.0-14.7	12.4	11.2-14.0	12.8	11.7-14.1
Syllabus-boundness	7.0	5.4- 8.1	7.6	6.4- 8.7	7.7	6.4- 8.6
Fear of Failure	5.8	4.5- 6.9	5.7	5.0- 6.4	5.9	4.8- 7.0
Extrinsic Motivation	2.8	1.5- 5.1	3.3	2.0- 4.4	4.5	2.8- 5.6
Strategic Approach	9.8	8.3-10.6	9.8	8.8-11.2	10.2	8.9-11.1
Disorganised Study Methods	9.2	7.8-11.4	8.2	7.1-10.6	9.9	8.7-13.0
Negative Attitudes to Studying	4.5	4.4- 6.3	5.9	5.0- 6.4	5.3	4.2- 8.6
Achievement Motivation	9.0	8.0-10.0	9.0	8.0-10.0	8.8	7.3- 9.9
Comprehension Learning	11.0	10.0-11.7	8.7	7.8-10.0	9.0	7.9-10.1
Globetrotting	7.8	6.8- 8.9	7.2	6.3- 8.5	8.2	7.4- 9.3
Operation Learning	8.6	7.5- 9.4	9.8	8.5-10.7	9.2	8.2-10.2
Improvidence	6.8	4.4- 8.4	7.1	6.3- 8.0	7.4	6.2- 8.7
MEANING ORIENTATION	40.6	37.5-43.7	39.4	37.2-42.8	40.7	36.0-44.4
REPRODUCING ORIENTATION	32.5	27.3-36.6	32.7	29.3-35.7	33.7	31.0-37.3
NON-ACADEMIC ORIENTATION	22.7	20.1-25.8	21.3	19.1-23.2	23.5	20.7-30.9
STRATEGIC ORIENTATION	21.4	18.0-24.0	22.2	19.2-24.7	23.6	21.5-26.0
Perceptions of Courses						
Formal Teaching Methods	3.3	2.5- 5.3	2.7	2.1- 3.6	6.7	3.8- 9.1
Clear Goals and Standards	6.7	3.6- 9.5	8.0	6.2-10.2	8.6	5.6-11.9
Workload	10.0	5.6-12.3	11.2	7.5-14.8	9.0	5.3-12.6
Vocational Relevance	3.9	3.1- 4.7	4.8	3.5- 5.6	6.5	4.7- 8.4
Good Teaching	11.4	8.1-13.8	11.8	9.8-14.0	11.8	9.2-14.0
Freedom in Learning	11.7	7.4-15.8	11.2	5.0-13.2	9.7	7.9-12.6
Openness to Students	8.5	5.9-13.5	7.7	4.2- 9.8	9.9	7.4-12.8
Good Social Climate	9.0	6.9-13.6	9.2	6.9-10.3	11.5	10.2-13.5
STUDENT-CENTRED	23.1	15.6-26.4	23.3	14.8-26.0	21.7	17.6-26.0
CONTROL-CENTRED	8.1	2.5-14.9	10.3	4.5-19.8	8.9	2.4-14.3

TABLE 2 Means of Sub Scales and Ranges of Departmental Mean Scores by Discipline (continued)

Subscales and Scales	Economics Mean	Economics Range	Physics Mean	Physics Range	Engineering Mean	Engineering Range
Approaches to studying						
Deep Approach	10.2	8.5-12.1	10.1	8.5-11.9	10.4	8.4-12.
Inter-relating Ideas	10.1	8.9-11.8	9.3	8.2-10.9	9.6	8.2-11.
Use of Evidence	9.4	8.7-10.4	9.8	8.6-10.3	9.9	9.0-11.
Intrinsic Motivation	7.0	4.9- 9.6	8.8	7.9- 9.9	7.3	5.3-10.
Surface Approach	13.8	12.8-15.0	13.2	10.9-14.7	13.2	10.8-16.
Syllabus-boundness	8.8	7.5- 9.5	8.6	7.6- 9.9	9.2	8.5-10.
Fear of Failure	6.0	4.6- 7.5	5.5	4.9- 6.2	6.2	5.0- 7.
Extrinsic Motivation	7.9	5.1- 9.4	5.7	4.0- 8.6	8.0	6.5-10.
Strategic Approach	10.3	9.5-10.8	10.6	9.2-11.5	10.5	8.5-11.
Disorganised Study Methods	9.4	8.1-11.0	9.6	8.1-10.9	9.8	8.0-11.
Negative Attitudes to Studying	5.6	4.3- 6.7	5.8	4.6- 6.9	5.4	4.5- 6.
Achievement Motivation	10.0	9.2-11.0	9.8	8.5-11.5	10.7	9.4-11.
Comprehension Learning	7.7	6.2- 9.2	8.2	6.3- 9.9	8.0	6.4-10.
Globetrotting	7.8	6.9- 8.5	7.4	6.3- 8.2	7.5	6.6- 8.
Operation Learning	10.8	10.1-12.0	10.1	9.2-11.8	11.1	9.7-12.
Improvidence	8.4	7.6- 9.0	7.4	4.9- 8.4	7.8	6.7- 9.
MEANING ORIENTATION	36.7	31.1-43.7	38.0	35.9-42.4	37.2	31.0-42.
REPRODUCING ORIENTATION	37.0	34.5-39.4	34.6	27.4-36.4	36.5	32.1-40.
NON-ACADEMIC ORIENTATION	22.9	21.0-25.3	22.8	19.1-24.1	22.6	19.7-25.
STRATEGIC ORIENTATION	28.2	24.4-29.8	25.5	21.6-30.8	28.7	25.7-32.
Perceptions of Courses						
Formal Teaching Methods	6.7	5.5- 7.8	12.0	9.6-13.5	12.1	10.0-16.
Clear Goals and Standards	11.0	8.4-12.7	11.4	10.0-13.3	12.2	11.5-13.
Workload	9.0	5.6-13.5	9.9	8.4-12.1	12.9	5.5-14.
Vocational Relevance	8.2	6.2- 9.0	8.9	5.3-12.6	13.4	9.0-15.
Good Teaching	11.8	8.0-14.1	11.8	10.7-12.8	11.4	9.1-13.
Freedom in Learning	10.4	7.4-12.6	8.2	6.3-11.3	8.1	5.8-11.
Openness to Students	8.7	6.2-11.8	9.2	6.4-12.1	8.6	6.7-11
Good Social Climate	9.9	7.8-12.0	11.2	9.0-12.7	11.0	8.3-13
STUDENT-CENTRED	22.2	18.6-25.6	20.1	18.0-22.4	19.6	16.9-23
CONTROL-CENTRED	8.4	4.2-14.9	11.6	7.3-14.8	14.1	3.8-18

TABLE 3 AN EXAMPLE OF A PATTERN OF SCORES

	Average score for students in this department	Average score for students in all 14 psychology departments	Highest and lowest scores for all the psychology departments
MEANING ORIENTATION	36.0	40.7	36.0-44.4
Deep approach	9.9	10.8	9.9-12.4
Relating ideas	10.3	10.9	10.1-12.0
Use of evidence	8.5	9.6	8.5-11.0
Intrinsic motivation	7.3	9.3	7.3-10.5
REPRODUCING ORIENTATION	37.3	33.7	31.0-37.3
Surface approach	13.7	12.7	11.7-14.1
Syllabus-boundness	8.2	7.6	6.4- 8.6
Fear of failure	7.0	5.8	4.8- 7.0
Improvidence	8.5	7.4	6.2- 8.7
NON-ACADEMIC ORIENTATION	30.9	23.5	20.7-30.9
Disorganised study methods	13.0	9.9	8.7-13.0
Negative attitudes to studying	8.6	5.3	4.2- 8.6
Globetrotting	9.3	8.3	7.4- 9.3
STRATEGIC ORIENTATION	24.7	23.6	21.5-26.0
Achievement motivation	9.2	8.8	7.3- 9.9
Extrinsic motivation	5.5	4.5	2.8- 5.6
Strategic approach	10.0	10.3	8.8-11.2
Comprehension learning	9.2	9.2	7.9-10.1
Operation learning	9.5	9.2	8.2-10.2
STUDENT-CENTRED	17.6	21.7	17.6-26.0
CONTROL-CENTRED	11.5	8.9	2.4-14.3
Good teaching	9.2	11.8	9.2-14.0
Freedom in learning	8.4	9.9	7.9-12.6
Workload	9.9	8.8	5.3-12.6
Formal teaching methods	6.5	6.6	2.8- 9.1
Clear goals and standards	6.8	8.7	5.6-11.9
Social climate	11.1	11.6	10.2-13.5
Openness to students	8.5	10.0	7.4-12.8
Vocational relevance	4.9	6.5	4.7- 8.4

LIST OF QUESTIONS, SUBSCALES AND SCALES

Subscales and Questions

Deep Approach (Cronbach Alpha = 0.56)

I generally put a lot of effort into trying to understand things which initially seem difficult.

I often find myself questioning things that I hear in lectures or read in books.

I usually set out to understand thoroughly the meaning of what I am asked to read.

When I'm tackling a new topic, I often ask myself questions about it which the new information should answer.

Relating Ideas (0.47)

I try to relate ideas in one subject to those in others, whenever possible.

In trying to understand new ideas, I often try to relate them to real life situations to which they might apply.

I need to read around a subject pretty widely before I'm ready to put my ideas down on paper.

I find it helpful to "map out" a new topic for myself by seeing how the ideas fit together.

Use of Evidence (0.38)

In reporting practical work, I like to try to work out several alternative ways of interpreting the findings.

I am usually cautious in drawing conclusions unless they are well supported by evidence.

Puzzles or problems fascinate me, particularly where you have to work through the material to reach a logical conclusion.

When I'm reading an article or research report, I generally examine the evidence carefully to decide whether the conclusion is justified.

Intrinsic Motivation (0.72)

My main reason for being here is so that I can learn more about the subjects which really interest me.

I find that studying academic topics can often be really exciting and gripping.

I spend a good deal of my spare time in finding out more about interesting topics which have been discussed in classes.

I find academic topics so interesting, I should like to continue with them after I finish this course.

Surface Approach (0.49)

Lecturers seem to delight in making the simple truth unnecessarily complicated.

I find I have to concentrate on memorising a good deal of what we have to learn.

When I'm reading I try to memorise important facts which may come in useful later.

The best way for me to understand what technical terms mean is to remember the text-book definitions.

I usually don't have time to think about the implications of what I have read.

Often I find I have tead things without having a chance to really understand them.

Syllabus-Boundness (0.51)

I like to be told precisely what to do in essays or other assignments.

I prefer courses to be clearly structured and highly organised.

I tend to read very little beyond what's required for completing assingments.

Fear of Failure (0.45)

The continual pressure of work - assignments, deadlines and competition - often makes me tense and depressed.

A poor first answer in an exam makes me panic.

Having to speak in tutorials is quite an ordeal for me.

Extrinsic Motivation (0.78)

I chose my present courses mainly to give me a chance of a really good job afterwards.

My main reason for being here is that it will help me to get a better job.

I generally choose courses more from the way they fit in with career plans than from my own interests.

I suppose I am more interested in the qualifications I'll get than in the courses I'm taking.

Strategic Approach (0.32)

Lecturers sometimes give indications of what is likely to come up in exams, so I look out for what may be hints.

When I'm doing a piece of work, I try to bear in mind exactly what that particular lecturer seems to want.

If conditions aren't right for me to study, I generally manage to do something to change them.

One way or another I manage to get hold of the books I need for studying.

Disorganised Study Methods (0.71)

I find it difficult to organise my study time effectively.

My habit of putting off work leaves me with far too much to do at the end of term.

Distractions make it difficult for me to do much effective work in the evenings.

I'm rather slow at starting work in the evenings.

Negative Attitudes to Studying (0.60)

Often I find myself wondering whether the work I am doing here is really worthwhile.

Continuing my education was something which happened to me, rather than something I really wanted for myself.

When I look back, I sometimes wonder why I ever decided to come here.

I certainly want to pass the next set of exams, but it doesn't really matter if I only just scrape through.

Achievement Motivation (0.58)

I enjoy competition: I find it stimulating.

It's important to me to do things better than my friends, if I possibly can.

I hate admitting defeat, even in trivial matters.

Comprehension Learning (0.65)

Ideas in books often set me off on long chains of thought of my own, only tenuously related to what I was reading.

In trying to understand a puzzling idea, I let my imagination wander freely to begin with, even if I don't seem to be much nearer a solution.

I like to play around with ideas of my own even if they don't get me very far.

Often when I'm reading books, the ideas produce vivid images which sometimes take on a life of their own.

Globetrotting (0.36)

ALthough I have a fairly good general idea of many things, my knowledge of the details is rather weak.

In trying to understand new topics, I often explain them to myself in ways that other people don't seem to follow.

I often get criticised for introducing irrelevant material into my essays or tutorials.

I seem to be a bit too ready to jump to conclusions without waiting for all the evidence.

Operation Learning (0.49)

I generally prefer to tackle each part of a topic or problem in order, working out one at a time.

I prefer to follow well tried out approaches to problems rather than anything too adventurous.

I find it better to start straight away with the details of a new topic and build up an overall picture in that way.

I think it is important to look at problems rationally and logically without making intuitive jumps.

Improvidence (0.42)

Although I generally remember facts and details, I find it difficult to fit them together into an overall picture.

I find it difficult to "switch tracks" when working on a problem: I prefer to follow each line of though as far as it will go.

Tutors seem to want me to be more adventurous in making use of my own ideas.

I find I tend to remember things best if I concentrate on the order in which the lecturer presented them.

Formal Teaching Methods (0.70)

A great deal of my time is taken up by timetabled classes (lectures, practicals, tutorials, etc.).

You can learn nearly everything you need to know from the classes and lectures; it isn't necessary to do much further reading.

In this department you're expected to spend a lot of time studying on your own.*

Lectures in this department are basically a guide to reading.*

Lectures seem to be more important than tutorials or discussion groups in this department.

Clear Goals and Standards (0.76)

You usually have a clear idea of where you're going and what's expected of you in this department.

It's always easy here to know the standard of work expected of you.

It's hard to know how well you're doing in the courses here.*

Lecturers here usually tell students exactly what they are supposed to be learning.

Lecturers here generally make it clear right from the start what will be required of students.

Workload (0.80)

The workload here is too heavy.

It sometimes seems to me that the syllabus tries to cover too many topics.

There is so much written work to be done that it is very difficult to get down to independent reading.

There seems to be too much work to get through in the courses here.

There's a lot of pressure on you as a student here.

---

* reversed scoring

Vocational Relevance (0.78)

The courses in this department are geared to students' future employment.

Lecturers in this department are keen to point out that they are giving us a professional training.

The courses here seem to be pretty well determined by vocational requirements.

The work I do here will definitely improve my future employment prospects.

There seems to be considerable emphasis here on inculcating the "right" professional attitudes.

Good Teaching (0.67)

Lecturers here frequently give the impression that they haven't anything to learn from students.*

Most of the staff here seem to prepare their teaching very thoroughly.

Lecturers in this department seem to be good at pitching their teaching at the right level for us.

Staff here make a real effort to understand difficulties students may be having with their work.

The lecturers in this department always seem ready to give help and advice on approaches to studying.

Freedom in Learning (0.72)

There is a real opportunity in this department for students to choose the particular areas they want to study.

The department really seems to encourage us to develop our own academic interests as far as possible.

We seem to be given a lot of choice here in the work we have to do.

This department gives you a chance to use methods of study which suit your own way of learning.

Students have a great deal of choice over how they are going to learn in this department.

---

* reversed scoring

Openness to Students (0.70)

Most of the staff here are receptive to suggestions from students for changes to their teaching methods.

Staff generally consult students before making decisions about how the courses are organised.

Most of the lecturers here really try hard to get to know students.

Lecturers in this department seem to go out of their way to be friendly towards students.

Lecturers in this department generally take students' ideas and interests seriously.

Social Climate (0.65)

A lot of the students in this department are friends of mine.

Students from this department often get together socially.

This department seems to foster a friendly climate which helps students to get to know each other.

This department organises meetings and talks which are usually well attended.

Students in this department frequently discuss their work with each other.

Scales and Subscales

Meaning Orientation (alpha = 0.79)

Deep approach + relating ideas + use of evidence + intrinsic motivation

Reproducing Orientation (0.73)

Surface approach + syllabus-boundness + fear of failure + improvidence

Non-academic Orientation (0.70)

Disorganised study methods + negative attitudes to studying + globetrotting

Strategic Orientation (0.67)

Extrinsic motivation + strategic approach + achievement motivation

Student-Centredness (0.75)

Good teaching + freedom in learning

Control-Centredness (0.75)

REFERENCES AND FURTHER READING

BIGGS, J.B. (1979). Individual differences in study processes and the quality of learning. Higher Education, 8, 381-394.

ENTWISTLE, N.J. (1981) Styles of Learning and Teaching. London: Wiley.

The fullest discussion of the theoretical background to the general research area. Lucid, but difficult in parts.

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A book of readings which contains accessible accounts of the earlier work of Gordon Pask and Ference Marton, on which parts of the approaches to studying inventory are based. Now out of print, but obtainable from libraries.

ENTWISTLE, N.J. and RAMSDEN, P. (1983). Understanding Student Learning London: Croom Helm.

The report of the Lancaster study, giving full details of the questionnaire, the associated interviews, and the earlier research on which they were based. The final chapter discusses the implications of the findings for improving teaching and learning in higher education.

ENTWISTLE, N.J. and WILSON, J.D. (1977). Degrees of Excellence. London: Hodder & Stoughton.

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Special edition devoted to student learning in higher education. Contains articles on the development of the questionnaire and on related work.

RAMSDEN, P. and ENTWISTLE, N.J. (1981). Effects of academic departments on students' approaches to studying. British Journal of Educational Psychology, 51, 368-383.

WILSON, J.D. (1981). Student Learning in Higher Education. London: Croom Helm.

A thoughtful summary of research findings. Unfortunately it does not describe the important advances that have taken place in very recent years.

THE UNIVERSITY OF MELBOURNE

INSTITUTE OF EDUCATION
CENTRE FOR THE STUDY OF HIGHER EDUCATION

31 August 1990

Ms Colleen Mills
11 Noble Place
Halswell
Christchurch 3
NEW ZEALAND

Dear Colleen,

Thank you for your letter about approaches to learning.

I suggest in reply to your first two queries that a good starting point would be the text edited by R.R. Schmeck from Illinois called Learning Strategies and Learning Styles (Plenum, New York, 1988). Reconciliation is of course a matter of one's point of view. The different approaches may be regarded as entirely compatible as long as it is accepted that they address different parts of the same problem, and not exactly the same questions. Recent work by John Biggs shows attempts to integrate the different perspectives.

Carol Speth's work is worth looking at for an example of another US study of approaches to learning. She published an article in the British Journal of Educational Psychology about it a couple of years back. Try to borrow copies of the American Educational Research Association's Annual Meeting Programs for the last few years for more examples.

You are welcome to use the inventory in any way you wish.

I hope that your studies are rewarding and successful.

Yours sincerely,

PAUL RAMSDEN

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APPENDIX F

Approaches to Studying Inventory results for sample (N=22)

Approaches to Studying Inventory Data (N=22)

	Students																						
Scales	M1	M2	M3	M4	M5	M6	M7	M8	M9	F1	F2	F3	F4	F5	F6	F7	F8	F10	F11	F12	F13	F14	
DA	5	7	10	16	6	10	7	4	7	10	13	12	6	6	10	10	13	10	10	13	14	6	9
RI	8	8	8	12	8	10	7	1	7	11	11	7	8	9	10	14	11	11	9	7	12	10	9
UE	7	13	10	11	7	6	7	3	6	9	14	10	6	4	6	3	8	13	10	8	7	7	8
IM	8	2	7	11	8	8	5	1	6	5	9	9	6	1	10	4	9	8	12	9	7	5	7
MO	28	30	35	50	29	34	26	9	26	35	47	38	26	20	36	31	41	42	41	37	40	28	33
SA	16	14	17	15	18	14	21	16	20	20	16	7	6	15	14	17	15	21	15	20	10	18	16
SB	10	9	9	7	10	7	10	12	11	10	11	9	4	12	10	11	9	10	12	11	9	12	10
FF	4	1	8	1	6	5	4	5	6	10	4	5	7	10	7	5	5	10	2	12	9	5	6
I	7	1	10	4	13	8	8	11	8	8	8	5	8	7	8	4	8	14	6	8	8	8	8
RO	37	25	44	27	47	34	43	44	45	48	39	26	25	44	39	37	37	55	35	51	36	43	39
EM	5	2	11	0	9	6	1	3	7	12	6	8	8	8	3	3	8	6	1	8	8	6	9
STA	12	16	13	15	10	10	7	7	4	13	13	12	4	14	12	10	13	14	15	10	12	12	10
AM	9	8	6	4	14	6	2	3	11	10	7	7	8	4	6	6	12	12	10	4	12	12	8
SO	26	26	30	19	33	22	10	13	22	35	26	27	20	26	21	19	33	32	26	22	32	30	25
DS	14	7	10	2	14	12	16	14	11	6	11	6	8	11	8	11	0	15	5	15	6	1	9
NA	6	6	13	4	13	9	4	14	11	5	10	4	8	15	2	8	10	12	1	10	4	8	8
GT	6	4	8	6	10	8	8	5	11	4	7	6	6	8	8	5	3	15	9	12	6	10	8
NAO	26	17	31	12	37	29	28	33	33	15	28	16	22	34	18	24	13	42	15	37	16	19	25

* See Appendix E for the names of each subscale and composite scale.